

## VPDES PERMIT PROGRAM FACT SHEET

This document gives the pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a **Minor, Industrial** permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of §9 VAC 25-260-00 et seq. The discharge results from the operation of a bulk oil terminal. Wastewater is generated from potentially contaminated storm water and hydrostatic test water. This permit action consists of updating boilerplate.

1. **Facility Name and Address:** **SIC Code:** 5171  

**BP Products North America - Montvale Terminal**  
1070 Oil Terminal Road  
Montvale, VA 24122

Location: 1070 Oil Terminal Road, Montvale, VA
2. **Permit No. VA0054577** **Expiration Date:** October 19, 2008
3. **Owner Contact:** Name: Michael Bedwell Title: Terminal Manager  
Telephone No.: (540) 947-2227
4. Application Complete Date: April 18, 2008  
Permit Drafted By: Kevin A. Harlow  
Reviewed By: Kip Foster  
Public Comment Period Dates: From: September 17, 2008 Date: September 2, 2008  
Date: September 10, 2008  
To: October 17, 2008
5. **Receiving Waters Classification:**  
Receiving Stream: South Fork Goose Creek  
Basin: Roanoke River Subbasin: Roanoke River  
Section: 5a Class: III Special Stds: PWS  
7-Day, 10-Year Low Flow: 0.51 MGD 1-Day, 10-Year Low Flow: 0.39 MGD  
30-Day, 5-Year Low Flow: 0.63 MGD Harmonic Mean Flow: 0.91 MGD  
30-Day, 10-Year Low Flow: 0.56 MGD  
Tidal: No On 303(d) List: No
6. **Licensed Operator Requirements:** None
7. **Reliability Class:** N/A
8. **Permit Characterization:**  
(X) Private ( ) Federal ( ) State ( ) POTW  
( ) Possible Interstate Effect ( ) Interim Limits in Other Document
9. **Facility Description:**  
See attached site inspection report and flow diagram (**Attachment A**).

Revised 2/2003

**State "FY2003 Transmittal Checklist" to Assist in Targeting  
Municipal and Industrial Individual NPDES Draft Permits for Review**

**Part I. State Draft Permit Submission Checklist**

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: BP Products North America, Incorporated - Montvale Terminal  
NPDES Permit Number: VA0054577  
Permit Writer Name: Kevin A. Harlow  
Date: August 28, 2008

**Major [ ]      Minor [ X ]      Industrial [X ]      Municipal [ ]**

| <b>I.A. Draft Permit Package Submittal Includes:</b>  | <b>Yes</b> | <b>No</b> | <b>N/A</b> |
|---|------------|-----------|------------|
| 1. Permit Application?  | X          |           |            |
| 2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)? | X          |           |            |
| 3. Copy of Public Notice?   |            | X         |            |
| 4. Complete Fact Sheet?   | X          |           |            |
| 5. A Priority Pollutant Screening to determine parameters of concern?   | X          |           |            |
| 6. A Reasonable Potential analysis showing calculated WQBELs?   | X          |           |            |
| 7. Dissolved Oxygen calculations?   |            | X         |            |
| 8. Whole Effluent Toxicity Test summary and analysis?   | X          |           |            |
| 9. Permit Rating Sheet for new or modified industrial facilities?   |            |           | X          |

| <b>I.B. Permit/Facility Characteristics</b>   | <b>Yes</b> | <b>No</b> | <b>N/A</b> |
|---|------------|-----------|------------|
| 1. Is this a new, or currently unpermitted facility?  |            | X         |            |
| 2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit? | X          |           |            |
| 3. Does the fact sheet or permit contain a description of the wastewater treatment process?   | X          |           |            |

| I.B. Permit/Facility Characteristics – cont. (FY2003)  | Yes | No | N/A |
|--|-----|----|-----|
| 4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?   |     | X  |     |
| 5. Has there been any change in streamflow characteristics since the last permit was developed?  | X   |    |     |
| 6. Does the permit allow the discharge of new or increased loadings of any pollutants?   |     | X  |     |
| 7. Does the fact sheet <b>or</b> permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses? | X   |    |     |
| 8. Does the facility discharge to a 303(d) listed water?   |     | X  |     |
| a. Has a TMDL been developed and approved by EPA for the impaired water?   |     |    | X   |
| b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?   |     |    | X   |
| c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?   |     |    | X   |
| 9. Have any limits been removed, or are any limits less stringent, than those in the current permit?   |     | X  |     |
| 10. Does the permit authorize discharges of storm water?   | X   |    |     |
| 11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?  |     | X  |     |
| 12. Are there any production-based, technology-based effluent limits in the permit?  |     | X  |     |
| 13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?  |     | X  |     |
| 14. Are any WQBELs based on an interpretation of narrative criteria?   |     | X  |     |
| 15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?   |     | X  |     |
| 16. Does the permit contain a compliance schedule for any limit or condition?  |     | X  |     |
| 17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?  |     | X  |     |
| 18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?  | X   |    |     |
| 19. Is there any indication that there is significant public interest in the permit action proposed for this facility?   |     | X  |     |
| 20. Have previous permit, application, and fact sheet been examined?   | X   |    |     |

## Part II. NPDES Draft Permit Checklist (FY2003)

### Region III NPDES Permit Quality Review Checklist – For Non-Municipals *(To be completed and included in the record for all non-POTWs)*

| <b>II.A. Permit Cover Page/Administration</b>  | <b>Yes</b> | <b>No</b> | <b>N/A</b> |
|--|------------|-----------|------------|
| 1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?  | X          |           |            |
| 2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?   | X          |           |            |
| <b>II.B. Effluent Limits – General Elements</b>  | <b>Yes</b> | <b>No</b> | <b>N/A</b> |
| 1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)? | X          |           |            |
| 2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?   | X          |           |            |
| <b>II.C. Technology-Based Effluent Limits (Effluent Guidelines &amp; BPJ)</b>  | <b>Yes</b> | <b>No</b> | <b>N/A</b> |
| 1. Is the facility subject to a national effluent limitations guideline (ELG)?   |            | X         |            |
| a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?                                    |            |           | X          |
| b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?        | X          |           |            |
| 2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)?  | X          |           |            |
| 3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits?   | X          |           |            |
| 4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)?       |            |           | X          |
| 5. Does the permit contain "tiered" limits that reflect projected increases in production or flow?   |            | X         |            |
| a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?   |            |           | X          |
| 6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?   | X          |           |            |

**II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ) – cont.**

|   | <b>Yes</b> | <b>No</b> | <b>N/A</b> |
|---|------------|-----------|------------|
| 7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits? |            | X         |            |
| 8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?                  |            | X         |            |

**II.D. Water Quality-Based Effluent Limits**

|  | <b>Yes</b> | <b>No</b> | <b>N/A</b> |
|--|------------|-----------|------------|
| 1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?   | X          |           |            |
| 2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?   |            | X         |            |
| 3. Does the fact sheet provide effluent characteristics for each outfall?  | X          |           |            |
| 4. Does the fact sheet document that a "reasonable potential" evaluation was performed?  | X          |           |            |
| a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?   | X          |           |            |
| b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?   | X          |           |            |
| c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?   | X          |           |            |
| d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)? | X          |           |            |
| e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?   | X          |           |            |
| 5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?   | X          |           |            |
| 6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established?   | X          |           |            |
| 7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?  | X          |           |            |
| 8. Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?   | X          |           |            |

FY2003

| II.E. Monitoring and Reporting Requirements (FY2003)   | Yes | No | N/A |
|--|-----|----|-----|
| 1. Does the permit require at least annual monitoring for all limited parameters?  | X   |    |     |
| a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver? |     |    |     |
| 2. Does the permit identify the physical location where monitoring is to be performed for each outfall?  | X   |    |     |
| 3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State's standard practices?  | X   |    |     |

| II.F. Special Conditions  | Yes | No | N/A |
|---|-----|----|-----|
| 1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs?                          | X   |    |     |
| a. If yes, does the permit adequately incorporate and require compliance with the BMPs?   | X   |    |     |
| 2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?                     |     |    | X   |
| 3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations? | X   |    |     |

| II.G. Standard Conditions  | Yes | No | N/A |
|--|-----|----|-----|
| 1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions? | X   |    |     |

#### List of Standard Conditions – 40 CFR 122.41

|  |                             |                           |
|--|-----------------------------|---------------------------|
| Duty to comply   | Property rights             | Reporting Requirements    |
| Duty to reapply  | Duty to provide information | Planned change            |
| Need to halt or reduce activity<br>not a defense   | Inspections and entry       | Anticipated noncompliance |
| Duty to mitigate   | Monitoring and records      | Transfers                 |
| Proper O & M   | Signatory requirement       | Monitoring reports        |
| Permit actions   | Bypass                      | Compliance schedules      |
|  | Upset                       | 24-Hour reporting         |
|  |                             | Other non-compliance      |
| 2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]? | X                           |                           |

### **Part III. Signature Page (FY2003)**

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

|           |   |
|-----------|---|
| Name      | <u>Kevin A. Harlow</u>  |
| Title     | <u>Environmental Engineer, Sr.</u>  |
| Signature |  |
| Date      | <u>8/28/2008</u>  |

The BP Products North America - Montvale Terminal is a petroleum product distribution center and is considered a bulk oil terminal due to the volume of product stored. Petroleum products are piped to the center, stored in large, above ground tanks and loaded into truck transports for distribution to retailers. BP has multiple aboveground storage tanks, including those for gasoline, diesel, and ethanol. Citgo owns a tank farm across the South Fork of Goose Creek with additional diesel fuel and unleaded gasoline tanks. BP maintains the Citgo tank areas and distributes the product through its terminal. BP also maintains and monitors the discharge from the Citgo tank diked area (outfall 003). Potentially contaminated stormwater is generated from three areas, the loading rack area and the two tank dike areas, and is discharged to the South Fork Goose Creek through two outfalls, 001 and 003.

**Outfall 001:** Outfall 001 receives contaminated stormwater from the BP tank dike area and the loading rack area. Flows from these two sources commingle at a manhole prior to discharging to the South Fork of Goose Creek.

Outfall 101: In the loading rack area contaminated stormwater is generated from (1) stormwater that collects in the containment areas around the additive tanks; (2) stormwater that falls on part of the driveway at the exit side of the loading rack; and (3) a small amount of stormwater that blows or drips under the covered section of the loading rack. Stormwater from these areas is collected and flows by gravity to a sedimentation tank and then to an oil/water separator. A second oil/water separator is available for overflow situations. The recovered product is stored in an approximately 3000 gallon tank onsite. The tank is periodically pumped and the contents disposed by a licensed contractor. The wastewater (101) flows to a sump pit and is pumped to a manhole where it joins with the discharge pipe from the BP tank dike (201).

Outfall 102: The tank area is graveled, without internal berms. The dike area is valved and is normally closed. The stormwater that collects in the dike is first visibly checked for sheen prior to discharge. There is no treatment other than the settling that occurs within the dike.

**Outfall 003:** Outfall 003 serves the Citgo tank farm area. The stormwater collects in one corner of the dike area and enters a pump station. As with the BP tank area, the stormwater is allowed to settle and is visually checked for TSS and sheen prior to discharge. The discharge point is at the northwestern corner of the property. The discharge joins a spring fed stream which then flows under a road, through a culvert, and then enters the South Fork of Goose Creek, almost directly opposite the point where outfall 001 enters the Creek. The spring originates at the base of the hill directly behind the tank farm and flows across Citgo property, paralleling the tank berm.

**Miscellaneous:** Tank bottom water from the BP site is siphoned from the tank and transported to an offsite disposal facility.

There are two intermittent sources of wastewater at the facility. The tanks and piping are hydrostatically tested every few years. Either creek water or water from the Montvale Water Company is used for the testing. Another intermittent source of wastewater results from the yearly testing of the fire suppression system at the loading rack. A 3% foam solution is used. The foam is washed down to the oil/water separator treating the loading rack area and discharges through outfall 101.

**This permit specifically prohibits discharge of tank bottom waters.**

**TABLE I**  
**NUMBER AND DESCRIPTION OF OUTFALLS**

| OUTFALL NUMBER | DISCHARGE SOURCE                        | TREATMENT                                 | MAXIMUM DAILY FLOW                                       |
|----------------|---|---|--|
| 001 (via 101)  | Loading Rack Wash Water                 | Sedimentation Basin & Oil/Water Separator | 0.0002 MGD   |
|                | Stormwater from Truck Loading Area      |   | 0.01 MGD   |
| 001 (via 102)  | Storm water from AST bermed area        | Sedimentation Basin                       | Variable - Stormwater                                    |
|                | Hydrostatic test water                  |   | 0.5 MGD (1.8 million gallon tank discharged over 5 days) |
| 003            | Storm water from bermed Citgo tank farm | Sedimentation Basin                       | Variable - Stormwater                                    |

10. **Sewage Sludge Use or Disposal:** N/A

11. **Discharge(s) Location Description:**

Name of Topo: Montvale - VA (See **Attachment C**)

Quadrangle Number: 108B

Latitude (Outfall 001): 37° 22' 58" Longitude (Outfall 001): 79° 44' 21"

Latitude (Outfall 003): 37° 22' 53" Longitude (Outfall 003): 79° 44' 21"

12. **Material Storage:**

Tank Farm

Diesel, gasoline, ethanol, and gasoline additives are stored in aboveground storage tanks located within two bermed areas - the "BP tank farm" and the "Citgo tank farm".

13. **Ambient Water Quality Information:**

The water body ID for this receiving stream is VAW-L20R. The receiving stream for Outfalls 001 and 003 is the South Fork Goose Creek on the USGS Montvale Quadrangle topographic map.

Flows have been revised based upon updated gage flows. The critical flow frequencies for the South Fork Goose Creek is given in **Attachment B**. Data was collected on South Fork Goose Creek at the Route 607 bridge below the fuel storage area in Montvale, Station ID 4AGSF002.16. Additionally, data was collected at Station ID 4AGSF002.60 at the Route 897 bridge upstream of the Montvale bulk oil terminals. The data is included in **Attachment B**. The receiving stream segment is not listed on Part 1 of the 303(d) list for exceedances of water quality standards.

14. **Antidegradation Review and Comments:**

Tier: 1. \_\_\_\_\_ 2. XX 3.

The State Water Control Board's Water Quality Standards (WQS) (9 VAC 25-260-30) provide all state surface waters one of three levels of antidegradation protection. For Tier I, existing uses of the water body and the water quality must be maintained. A Tier II water body has water quality that is better than the narrative and numeric water quality criteria. Significant lowering of the water quality of a Tier II water is not allowed without an evaluation of the economic and social impacts, as required by Water Quality Standards, 9 VAC 25-260-30. A Tier III water body is an exceptional water body that is designated by regulation. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with the Tier determination. The South Fork of Goose Creek is a perennial stream and is not listed on Part 1 of the 303(d) list for exceedances of water quality criteria. Available stream pollutant data have been compared to the WQS. This analysis indicates the quality of the South Fork of Goose Creek does not exceed numeric criteria for any pollutant and is therefore classified as a Tier II water with no "significant degradation" allowed.

For purposes of aquatic life protection, "significant degradation" means that no more than 25% the difference between the acute and chronic aquatic criteria values and the existing quality (unused assimilative capacity) may be allocated. For purposes of human health protection, "significant degradation" means that no more than 10% of the difference between the human health criteria and the existing quality (unused assimilative capacity) may be allocated. The significant degradation baseline (antidegradation baseline) is calculated for each pollutant as follows:

$$\text{Antidegradation baseline (aquatic life)} = 0.25 (\text{WQS} - \text{existing quality}) + \text{existing quality}$$

$$\text{Antidegradation baseline (human health)} = 0.10 (\text{WQS} - \text{existing quality}) + \text{existing quality}$$

Where:

"WQS" = Numeric criterion listed in 9 VAC 25-260-5 et seq. for the parameter analyzed

"Existing quality" = Concentration of the parameter being analyzed in the receiving stream, including the facility's existing discharge.

When applied, the antidegradation baselines become the new water quality criteria to prevent significant degradation of the receiving stream. Effluent limits for future expansions or new facilities must be written to maintain the antidegradation baselines for each pollutant. Prior to expansion the antidegradation baselines will be calculated for this facility as described above, in accordance with Guidance Memorandum GM00-2011. Permit limits are in compliance with antidegradation requirements set forth in the 9 VAC 25-260-30.

15. **Site Inspection:**

Date 10/4/06 Performed By Kevin A. Harlow

See **Attachment A** for a copy of the site inspection.

16. **Effluent Screening and Limitation Development:**

Attachment A - Site/Flow Diagram, USGS Map, Site Visit Memo

|                |   |
|----------------|---|
| Attachment B - | Flow Frequency Memo, Mix.exe Output, Waste Load Allocation Spreadsheet, Receiving Stream Background Data, Effluent Data |
| Attachment C - | TMP Justification Memorandum  |
| Attachment D - | NPDES Permit Rating Worksheet   |

DEQ Guidance Memorandum 00-2011 was used in developing all water quality based limits pursuant to water quality standards (9 VAC 25-260-5 et seq.). Refer to **Attachment B** for the facility discharge information, wasteload allocation spreadsheet, and effluent limit calculations. See Table II for a summary of the effluent limitations and monitoring requirements associated with the permit parameters. See Table III for the basis for Outfall 001 limits.

**Reduced Monitoring:** All permit applications received after May 4, 1998, are to be considered for reduction in effluent monitoring frequency. GM 98-2005 states that “only facilities having exemplary operations that consistently meet permit requirements should be considered for reduced monitoring.” This facility was issued Warning Letters #W2006-07-W-1013 and 2007-05-W-1004 and is therefore ineligible for reduced monitoring.

### **OUTFALL 001**

**Flow:** Flow is to be estimated once per discharge month. This sample type is in accordance with the VPDES Permit Manual for Bulk Oil Terminals. The sample type and frequency are unchanged from the previous permit.

**pH:** pH limits of 6.0 S.U. minimum and 9.0 S.U. maximum are based on water quality standards (9 VAC 25-260-5 et seq.) for the receiving stream. Monitoring using grab samples is consistent with the current permit and in accordance with the sampling guidelines in the VPDES Permit Manual for Bulk Oil Terminals. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

**Total Suspended Solids:** A BPJ limit of 30 mg/l daily maximum was developed for this permit in 1988 and continued in subsequent permits (1993, 1998, 2003). Given that this outfall has a control/treatment system and that the TSS limit is used by the operator as an operational control of the treatment system, the TSS limit will be maintained. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

**Total Organic Carbon:** A technology-based limit of 110 mg/l daily maximum was imposed in the 1998 permit reissuance (and continued in the 2003 permit) based on Best Professional Judgement and in accordance with the 1997 VPDES Permit Manual. Although TOC is not included as part of the recommended BPJ limits in the current VPDES Permit Manual, the limit is not removed due to antibacksliding requirements. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

**Total Petroleum Hydrocarbons:** The permit is reissued with the BPJ limit of 15 mg/l for TPH as recommended in the VPDES Permit Manual. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

**Whole Effluent Toxicity:** The facility has an existing wet limit of 3.98 TU<sub>a</sub> due to toxicity at the

loading rack area. Therefore WET sampling must occur at Outfall 001 when outfall 101 is discharging by itself. See supporting documentation and data in **Attachment C**. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

**Other Water Quality Limits:** The water quality standards monitoring results submitted in Attachment A of the 2003 permit and Waste Load Allocation calculations are in **Attachment B**. All results were below the quantification level. Therefore there is no reasonable potential to exceed the WLA and no limits are required. Benzene, toluene, ethylbenzene, and lead will continue to be monitored once per six months after three years from the permit's effective date due to the potential for contamination. In order to calculate the WLA, hardness will be monitored at the same frequency as lead.

### **HYDROSTATIC TEST WATER**

Discharges from hydrostatic testing are limited through special condition Part I.B.5. This special condition, in accordance with the VPDES Permit Manual, sets limitations on TPH, benzene, toluene, ethylbenzene, xylene, lead, and naphthalene. If a chlorinated water supply is used, a chlorine limit will also be effective. The limits have been revised based upon updated critical flows of the receiving stream. These limits are based on the Water Quality Standards (9 VAC 25-260-5 et seq).

### **OUTFALL 003**

**Flow:** Flow is to be estimated once per discharge month. This sample type is in accordance with the VPDES Permit Manual for Bulk Oil Terminals. The sample type and frequency are unchanged from the previous permit.

**pH:** pH limits of 6.0 S.U. minimum and 9.0 S.U. maximum are based on water quality standards (9 VAC 25-260-5 et seq.) for the receiving stream. Monitoring using grab samples is consistent with the current permit and in accordance with the sampling guidelines in the Permit Manual for Bulk Oil Terminals. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

**Total Suspended Solids:** A BPJ limit of 30 mg/l daily maximum was developed for this permit in 1988 and continued in subsequent permits (1993, 1998, 2003). Given that this outfall has a control/treatment system and that the TSS limit is used by the operator as an operational control of the treatment system, the TSS limit will be maintained. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

**Total Organic Carbon:** A technology-based limit of 110 mg/l daily maximum was imposed in the 1998 permit reissuance (and continued in the 2003 permit) based on Best Professional Judgement and in accordance with the 1997 VPDES Permit Manual. Although TOC is not included as part of the recommended BPJ limits in the current VPDES Permit Manual, the limit is not removed due to antibacksliding requirements. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

**Total Petroleum Hydrocarbons:** The permit is reissued with the BPJ limit of 15 mg/l for TPH as

recommended in the VPDES Permit Manual. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

**Other Water Quality Limits:** The water quality standards monitoring results submitted in Attachment A of the 2003 permit and Waste Load Allocation calculations are in **Attachment B**. All results were below the quantification level. Therefore there is no reasonable potential to exceed the WLA and no limits are required. Benzene, toluene, ethylbenzene, and lead will continue to be monitored once per six months after three years from the permit's effective date due to the potential for contamination. In order to calculate the WLA, hardness will be monitored at the same frequency as lead.

### **HYDROSTATIC TEST WATER**

Discharges from hydrostatic testing are limited through special condition Part I.B.5. This special condition, in accordance with the VPDES Permit Manual, sets limitations on TPH, benzene, toluene, ethylbenzene, xylene, lead, and naphthalene. If a chlorinated water supply is used, a chlorine limit will also be effective. The limits have been revised based upon updated critical flows of the receiving stream. These limits are based on the Water Quality Standards (9 VAC 25-260-5 et seq.).

17. **Antibacksliding Statement:**

All limits in this reissuance are at least as stringent as the limits in the previous permit. Therefore, this permit issuance complies with antibacksliding requirements.

18. **Compliance Schedules:**

There will be no compliance schedules included in the reissued permit.

19. **Special Conditions:**

a. **Notification Levels (Part I.B.1)**

**Rationale:** Required by VPDES Permit Regulation, 9 VAC 25-31-200 A for all manufacturing, commercial, mining, and silvicultural dischargers.

b. **Materials Handling/Storage (Part I.B.2)**

**Rationale:** 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

c. **Operations and Maintenance Manual (Part I.B.3)**

**Rationale:** Required by Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9 VAC 25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O&M manual ensures this.

d. **Storm Water Reopener (Part I.B.4)**

**Rationale:** Section 402 of the Clean Water Act limits the discharge of industrial storm

water pollution and establishes a framework for developing permits over time based on a 4 tier set of priorities.

e. **Hydrostatic Testing (Part I.B.5)**

**Rationale:** Hydrostatic test water discharges qualify for permit coverage under the State Water Control Law and the Clean Water Act. Advance notification will improve enforcement of the permit during these activities. Limits are based upon the VPDES Permit Manual, Virginia Water Quality Standards, and the VPDES General Permit for Petroleum Contaminated Sites, Groundwater Remediation, and Hydrostatic Tests.

f. **Compliance Reporting (Part I.B.6)**

**Rationale:** Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

g. **Total Maximum Daily Load (TMDL) Reopener (Part I.B.7)**

**Rationale:** Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

h. **Water Quality Criteria Monitoring (Part I.B.8)**

**Rationale:** State Water Control Law § 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted.

i. **Oil Storage Ground Water Monitoring Reopener (Part I.B.9)**

**Rationale:** Most facilities with large oil storage tanks, above or under ground, are required to monitor ground water under the Oil Discharge Contingency Plans and Administrative Fees for Approval Regulation, 9 VAC 25-90-10 et seq. Where potential exists for ground water pollution and that regulation does not require monitoring, the VPDES permit may under Code of Virginia §62.1-44.21.

j. **Toxic Management Program (Part I.C)**

**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. The TMP Justification Memorandum in **Attachment C** contains a more detailed discussion of the basis for this requirement.

k. **Whole Effluent Toxicity (WET) Limitations and Monitoring Requirements (Part I.D)**

**Rationale:** The VPDES Permit Regulation in 9 VAC 25-31-220D.1.d. states that A...when the Board determines, using the procedures in paragraph D 1 b of this section, toxicity testing data, or other information, that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative criterion within an applicable Virginia water quality standard, the permit must contain effluent limits for whole effluent toxicity.”

20. **NPDES Permit Rating Worksheet:** Total Score 70  
See Attachment H.

21. **Changes to Permit:**

**Special Conditions:**

The permit language in the special conditions has been updated to reflect the current VPDES Permit Manual.

**Part I.B.5:** The hydrostatic test water discharge limits are revised as follows:

Outfall 001: TPH from 30 mg/L to 15 mg/L (recommended BPJ limit for hydrostatic test waters in Guidance Memorandum GM08-2006); benzene from 396 µg/L to 120 µg/L (water quality standards); lead from 161 µg/L to 78 µg/L (water quality standards); and TRC from 80 µg/L to 48 µg/L (water quality standards).

Outfall 003: TPH from 30 mg/L to 15 mg/L (recommended BPJ limit for hydrostatic test waters in Guidance Memorandum GM08-2006); benzene from 297 µg/L to 83 µg/L (water quality standards); lead from 109 µg/L to 54 µg/L (water quality standards); and TRC from 60 µg/L to 34 µg/L (water quality standards).

**Part I.B.6:** Added a maximum QL for TPH and Xylenes.

**Part I.B.7:** The Best Management Practices Plan (Old Part I.B.7) special condition is removed based upon the results of the annual BMP reports. Effluent toxicity will continue to be monitored via the Toxics Management Program (Part I.C).

The new Total Maximum Daily Load (new Part I.B.7) is a new special condition.

**Part I.C:** Updated the language to reflect the current language recommended in Guidance Memo 00-2012.

**Part I.D:** Updated the language to reflect the current language recommended in Guidance Memo 00-2012.

**Part I.E.:** Deleted. Regulatory authority over storm water discharges associated with construction activities has been transferred to DCR.

22. **Variances/Alternate Limits or Conditions:**

No variances/alternate limits or conditions are included in this permit.

23. **Public Notice Information:**

All pertinent information is on file and may be inspected or copied by contacting Kevin Harlow at Virginia DEQ – WCRO, 3019 Peters Creek Road, Roanoke, VA 24019 and 540-562-6700; [kaharlow@deq.virginia.gov](mailto:kaharlow@deq.virginia.gov).

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

24. **Additional Comments:**

- A. **Previous Board Action:** None
- B. **Staff Comments:** The discharge is not controversial. The discharge is not addressed in any planning document.
- C. **Public Comments:**  
No comments were received during the public notice period.

25. **303(d) Listed Segments (TMDL):**

This facility discharges into a U.T. to South Fork Goose Creek. This segment of the South Fork Goose Creek and the unnamed tributary are not 303(d) listed segments.

**Table II. EFFLUENT LIMITATIONS FOR INDUSTRIAL PERMITS**  
 ( ) Interim Limitations  
 (X) Final Limitations  
 Outfall 001

| PARAMETER                          | BASIS FOR LIMITS | DISCHARGE LIMITATIONS |                |          | MONITORING REQUIREMENTS |                         |
|------------------------------------|------------------|-----------------------|----------------|----------|-------------------------|-------------------------|
|                                    |                  | Monthly Average       | Weekly Average | Minimum  | Maximum                 | Frequency               |
| Flow, MGD                          | NA               | NL                    | NA             | NA       | NL                      | 1/D-M                   |
| pH, standard units                 | 3                | NA                    | NA             | 6.0 s.u. | 9.0 s.u.                | 1/D-M                   |
| Total Suspended Solids, mg/l       | 2                | NA                    | NA             | NA       | 30 mg/l<br>NA kg/d      | 1/D-M                   |
| Whole Effluent Toxicity* (WET)     | 3                | NA                    | NA             | NA       | 3.98 TUa                | 1/6 months<br>Composite |
| Total Organic Carbon, mg/l         | 2                | NA                    | NA             | NA       | 110 mg/l<br>NA kg/d     | 1/D-M                   |
| Total Petroleum Hydrocarbons, mg/l | 2                | NA                    | NA             | NA       | 15 mg/l<br>NA kg/d      | 1/D-M                   |

NA = Not Applicable

NL = No Limitations

1/D-M = Once per month in which a discharge occurs

Composite = A composite sample shall be collected for the duration of the pumping of effluent from Outfall 101 that comprises the discharge, not to exceed a 24-hour period.

\*Whole Effluent Toxicity applies only when Outfall 101 is contributing to the discharge of Outfall 001.

The basis for the limitations codes are:

1. Federal Effluent Guidelines
2. Best Professional Judgement
3. Water Quality Standards
4. Other

Note: All samples should be collected from the discharge resulting from a storm event. The grab sample should be taken during the first 3 hours of discharge.

( ) Interim Limitations  
(X) Final Limitations

Table III. EFFLUENT LIMITATIONS FOR INDUSTRIAL PERMITS

Outfall 003

Effective Dates - From: Effective Date  
To: Expiration Date

| PARAMETER                          | BASIS FOR LIMITS | DISCHARGE LIMITATIONS |                |          | MONITORING REQUIREMENTS |           |             |
|------------------------------------|------------------|-----------------------|----------------|----------|-------------------------|-----------|-------------|
|                                    |                  | Monthly Average       | Weekly Average | Minimum  | Maximum                 | Frequency | Sample Type |
| Flow, MGD                          | NA               | NL                    | NA             | NA       | NL                      | 1/D-M     | Est.        |
| pH, standard units                 | 3                | NA                    | NA             | 6.0 s.u. | 9.0 s.u.                | 1/D-M     | Grab        |
| Total Suspended Solids, mg/l       | 2                | NA                    | NA             | NA       | 30 mg/l<br>NA kg/d      | 1/D-M     | Grab        |
| Total Organic Carbon, mg/l         | 2                | NA                    | NA             | NA       | 110 mg/l<br>NA kg/d     | 1/D-M     | Grab        |
| Total Petroleum Hydrocarbons, mg/l | 2                | NA                    | NA             | NA       | 15 mg/l<br>NA kg/d      | 1/D-M     | Grab        |

NA = Not Applicable

NL = No Limitations

1/D-M = Once per month in which a discharge occurs

The basis for the limitations codes are:

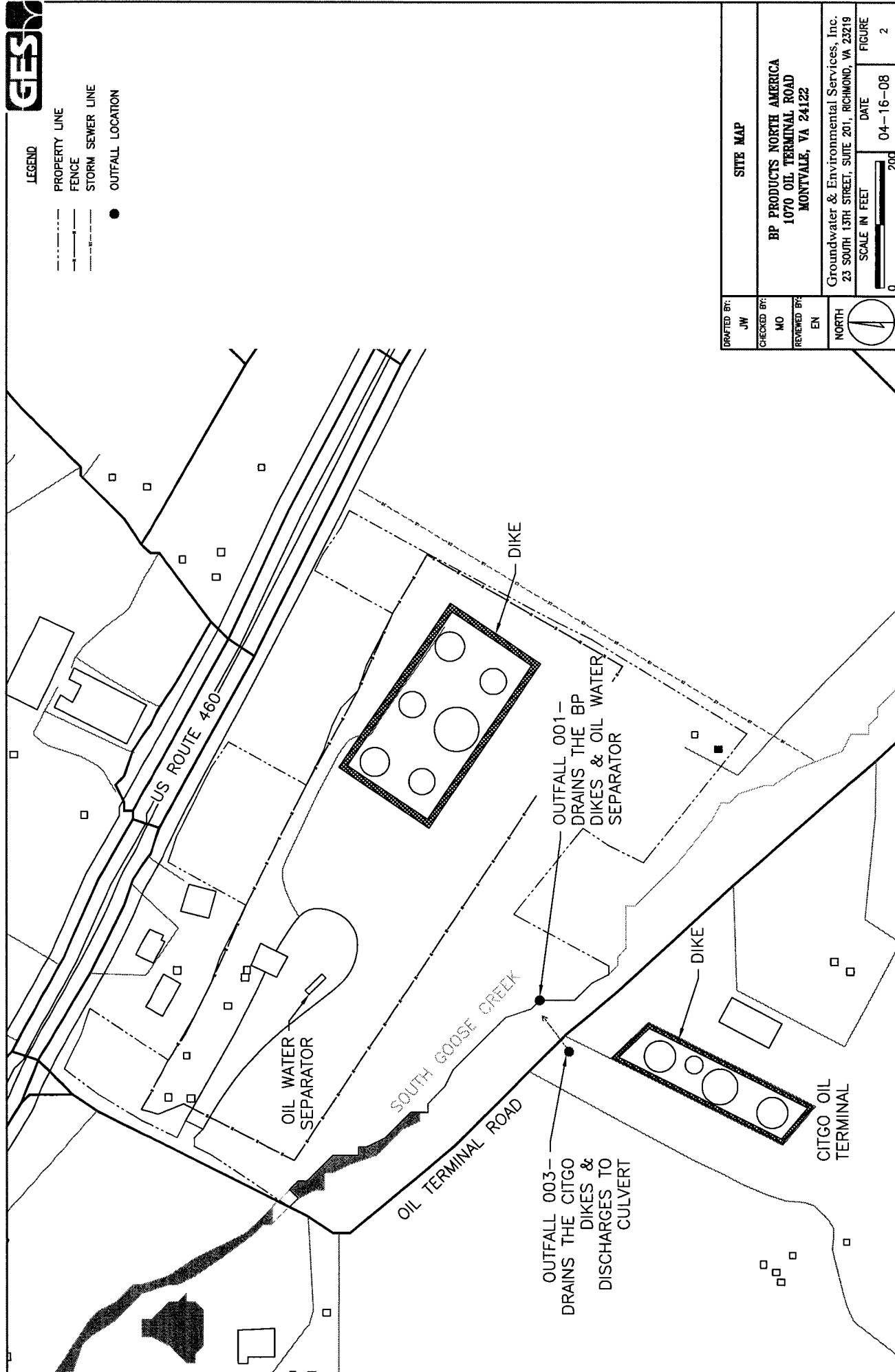
1. Federal Effluent Guidelines
2. Best Professional Judgement
3. Water Quality Standards
4. Other

Note: All samples should be collected from the discharge resulting from a storm event. The grab sample should be taken during the first 3 hours of discharge.

## **ATTACHMENT A**

- Site/Flow Diagram
- USGS Map
- Site Visit Memo

**SITE/FLOW DIAGRAM**



**USGS MAP**



|                |          |                           |
|----------------|----------|---------------------------|
| DRAFTED BY:    | JW       | LOCAL AREA MAP            |
| CHECKED BY:    | MO       | BP PRODUCTS NORTH AMERICA |
| REVIEWED BY:   | EN       | 1070 OIL TERMINAL ROAD    |
| NORTH:         | Montvale | MONTVALE, VA 24122        |
| SCALE IN FEET: | 1500     | DATE FIGURE               |

Groundwater & Environmental Services, Inc.  
23 SOUTH 15TH STREET, SUITE 201, RICHMOND, VA 23219  
SCALE IN FEET 0 1500 04-16-08 FIGURE

**SITE VISIT MEMO**

**M E M O R A N D U M**

**DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**West Central Regional Office**

3019 Peters Creek Road

Roanoke, VA 24019

**SUBJECT:** Site Inspection BP Products North America - Montvale Terminal  
VA0054557 - Reissuance

**TO:** File

**FROM:** Kevin Harlow

**DATE:** September 2, 2008

BP Products North America – Montvale Terminal discharges to the South Fork Goose Creek. The permit writer viewed the South Fork Goose Creek at approximately the location the discharge enters the stream during a site visit for TransMontaigne – Atlantic Terminal (VA0026051) on October 4, 2006. The stream is at most 10 foot in width, and average bottom scale and slightly meandering. There are multiple bulk oil terminals with substantially similar effluent that discharge within this segment of the South Fork Goose Creek.

On August 19, 2003, the writer completed a site inspection of the above referenced facility for the 2003 permit reissuance. Present during the inspection were Maribeth Dobbins and Donna King with BP Products North America.

The BP Products North America - Montvale Terminal is a petroleum product distribution center. Petroleum products are piped to the center, stored in large, above ground tanks and loaded into truck transports for distribution to retailers. There are two separate tank farms at this facility. The BP tank farm is on the north side of South Fork Goose Creek and the Citgo tank farm, owned by Citgo, is on the south side of South Fork Goose Creek on the south side of Oil Terminal Road. has 3 gasoline tanks, two fuel oil tanks, and one diesel fuel tank. BP maintains the Citgo tank areas and distributes the product through its terminal. BP also maintains and monitors the discharge from the Citgo tank diked area (outfall 003). The BP tank farm discharges to Outfall 001.

Wastewater is generated from three areas, the loading rack area and the two tank dike areas, and is discharged offsite through two outfalls, 001 and 003. Outfall 001 receives contaminated stormwater from the BP tank dike area and the loading rack area. Previously, the BP tank dike area was discharged through outfall 002 to an unnamed tributary of the South Fork of Goose Creek. BP has rerouted the tank dike discharge to join outfall 001 in a manhole before discharging to the South Fork of Goose Creek. The tank area is graveled with no internal berms separating the tanks. The dike area is valved and is normally closed. The stormwater that collects in the dike is first visibly checked for sheen prior to discharge. There is no treatment other than the settling that occurs in the dike.

BP Site Inspection - Roanoke Terminal  
Page 2

The second source of contaminated stormwater to outfall 001 is the loading rack area. In the loading rack area contaminated stormwater is generated from (1) stormwater that collects in the containment areas around the additive tanks; (2) stormwater that falls on part of the driveway at the exit side of the loading rack; and (3) a small amount of stormwater that blows or drips under the covered section of the loading rack. Stormwater from these areas is collected and flows by gravity to a 500-750 gallon sedimentation tank and then to a 14,000 gallon oil/water separator and a second oil/water separator for overflow. The recovered product is stored in an approximately 3000 gallon tank onsite. The tank is periodically pumped and the contents disposed by a licensed contractor. The treated wastewater flows to a sump pit and is pumped to a manhole where it joins with the discharge pipe from the BP tank dike.

Outfall 003 serves the Citgo tank farm area. No change is proposed for this outfall. The stormwater collects in one corner of the dike area and enters a pump station. The discharge point is at the northwestern corner of the property. The discharge joins a spring fed stream which then flows under the road, through a culvert, and then enters the South Fork of Goose Creek, almost directly opposite the point where outfall 001 enters the Creek. The spring originates at the base of the hill directly behind the tank farm and flows across the Citgo property, paralleling the tank berm.

Tank bottom water from the BP site is stored in a 10,000 gallon above ground tank (with secondary containment) until it is transported offsite for disposal. The Citgo site has a 1000 gallon tank for tank bottom water storage. The tanks and piping are hydrostatically tested every few years or as needed.

## **ATTACHMENT B**

- Flow Frequency Memo
- Waste Load Allocation Spreadsheet
- Receiving Stream Background Data
- MIX.exe Output
- Effluent Data

**FLOW FREQUENCY MEMO**

## MEMORANDUM

**DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION**  
**West Central Regional Office**  
**3019 Peters Creek Road      Roanoke, Virginia 24019**

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**SUBJECT:** Flow Frequency Determination  
BP Products NA - Montvale Terminal

**TO:** Permit File

**FROM:** Kevin Harlow, Water Permit Writer, WCRO

**DATE:** September 2, 2008

This memo supersedes prior flow frequency memos for the subject VPDES permit.

The BP Products NA - Montvale Terminal facility discharges to the South Fork Goose Creek via Outfalls 001 and 003. These outfalls are located in close proximity to one another and are considered to be co-located for the purposes of the flow frequency determination. The facility and its outfalls are located near Montvale, VA on Oil Terminal Road. Stream flow frequencies are required at these sites by the permit writer for the purposes of calculating effluent limitations for the VPDES permit.

**Outfalls 001 & 003:**

The USGS conducted several flow measurements on the North Fork Goose Creek from 1951 to 1954 and from 19881 to 1985. The measurements were made at the Route 460 bridge near Montvale, VA. The measurements correlated very well with the same day daily mean values from three continuous record gages; one on the Big Otter River near Evington, VA #02061500, the second on Tinker Creek near Daleville, VA #02055100, and the third on Goose Creek near Huddleston, VA #02059500. A regression equation was determined using the measurements and the daily mean values for each gage. An average of the resulting flow values was then assigned to the measurement site.

The flow frequencies at Outfall 001 and 003 were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The data for the reference gages, the measurements site, and the discharge point are presented below.

**Big Otter River near Evington, VA (#02061500)**  
Drainage Area = 320 mi<sup>2</sup>

|       |   |         |                 |           |
|-------|---|---------|-----------------|-----------|
| 1Q30  | = | 6.5 cfs |                 |           |
| 1Q10  | = | 18 cfs  | High Flow 1Q10  | = 85 cfs  |
| 7Q10  | = | 21 cfs  | High Flow 7Q10  | = 98 cfs  |
| 30Q10 | = | 31 cfs  | High Flow 30Q10 | = 131 cfs |
| 30Q5  | = | 48 cfs  | Harmonic Mean   | = 132 cfs |

**Tinker Creek at Daleville, VA (#02055100)**  
Drainage Area = 11.7 mi<sup>2</sup>

|       |   |          |                 |           |
|-------|---|----------|-----------------|-----------|
| 1Q30  | = | 0.65 cfs |                 |           |
| 1Q10  | = | 0.96 cfs | High Flow 1Q10  | = 2.3 cfs |
| 7Q10  | = | 1.0 cfs  | High Flow 7Q10  | = 2.6 cfs |
| 30Q10 | = | 1.2 cfs  | High Flow 30Q10 | = 3.2 cfs |
| 30Q5  | = | 1.6 cfs  | Harmonic Mean   | = 5.0 cfs |

**Goose Creek near Huddleston, VA (#02059500)**  
Drainage Area = 188 mi<sup>2</sup>

|       |   |        |                 |          |
|-------|---|--------|-----------------|----------|
| 1Q30  | = | 11 cfs |                 |          |
| 1Q10  | = | 17 cfs | High Flow 1Q10  | = 44 cfs |
| 7Q10  | = | 20 cfs | High Flow 7Q10  | = 52 cfs |
| 30Q10 | = | 27 cfs | High Flow 30Q10 | = 66 cfs |
| 30Q5  | = | 34 cfs | Harmonic Mean   | = 87 cfs |

**North Fork Goose Creek near Montvale, VA (#02059400)**  
Drainage Area = 31.5 mi<sup>2</sup>

|       |   |          |                 |             |
|-------|---|----------|-----------------|-------------|
| 1Q30  | = | 4.85 cfs |                 |             |
| 1Q10  | = | 5.57 cfs | High Flow 1Q10  | = 9.34 cfs  |
| 7Q10  | = | 5.87 cfs | High Flow 7Q10  | = 9.40 cfs  |
| 30Q10 | = | 6.68 cfs | High Flow 30Q10 | = 10.27 cfs |
| 30Q5  | = | 7.72 cfs | Harmonic Mean   | = 11.22 cfs |

**South Fork Goose Creek at discharge points (Outfalls 001 & 003)**  
Drainage Area = 3.95 mi<sup>2</sup>

|       |   |                     |                 |                       |
|-------|---|---------------------|-----------------|-----------------------|
| 1Q30  | = | 0.61 cfs (0.39 MGD) |                 |                       |
| 1Q10  | = | 0.75 cfs (0.48 MGD) | High Flow 1Q10  | = 1.12 cfs (0.72 MGD) |
| 7Q10  | = | 0.78 cfs (0.51 MGD) | High Flow 7Q10  | = 1.18 cfs (0.76 MGD) |
| 30Q10 | = | 0.87 cfs (0.56 MGD) | High Flow 30Q10 | = 1.29 cfs (0.83 MGD) |
| 30Q5  | = | 0.97 cfs (0.63 MGD) | Harmonic Mean   | = 1.41 cfs (0.91 MGD) |

The high flow months are January–May. This analysis does not address withdrawals or springs influencing the flow in South Fork Goose Creek upstream of the discharge point. There are several other VPDES discharges in the South Fork Goose Creek watershed that have not been addressed in this analysis.

**WASTE LOAD ALLOCATION SPREADSHEET**

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: BP Products NA - Montvale Terminal

Permit No.: VA0054577

Receiving Stream: South Fork of Goose Creek

Version: OWP Guidance Memo 00-2011 (8/24/00)

| Stream Information                      |  | Stream Flows |  |  |  | Mixing Information |  |  |  | Effluent Information |  |  |  |
|---|--|--------------|--|--|--|--------------------|--|--|--|----------------------|--|--|--|
| Mean Hardness (as CaCO <sub>3</sub> ) = |  | 172 mg/L     |  |  |  | 0.48 MGD           |  |  |  | 100 %                |  |  |  |
| 90% Temperature (Annual) =              |  | 21.3 deg C   |  |  |  | 0.51 MGD           |  |  |  | 100 %                |  |  |  |
| 90% Temperature (Wet season) =          |  | 21.3 deg C   |  |  |  | 0.56 MGD           |  |  |  | 100 %                |  |  |  |
| 90% Maximum pH =                        |  | 7.8 SU       |  |  |  | 0.72 MGD           |  |  |  | 100 %                |  |  |  |
| 10% Maximum pH =                        |  | 7.8 SU       |  |  |  | 0.83 MGD           |  |  |  | 100 %                |  |  |  |
| Tier Designation (1 or 2) =             |  | 2            |  |  |  | 0.63 MGD           |  |  |  | 10% Maximum pH =     |  |  |  |
| Public Water Supply (PWS) Y/N? =        |  | Y            |  |  |  | 1.41 MGD           |  |  |  | Discharge Flow =     |  |  |  |
| Trout Present Y/N? =                    |  | N            |  |  |  | 1.41 MGD           |  |  |  | 0.0102 MGD           |  |  |  |
| Early Life Stages Present Y/N? =        |  | Y            |  |  |  |                    |  |  |  |                      |  |  |  |

| Parameter<br>(ug/l unless noted) | Background<br>Conc. | Water Quality Criteria |          |          |         | Wasteload Allocations |         |          |         | Antidegradation Baseline |          |          |         | Antidegradation Allocations |         |          |         | Most Limiting Allocations |         |          |         |         |         |
|----------------------------------|---------------------|------------------------|----------|----------|---------|-----------------------|---------|----------|---------|--------------------------|----------|----------|---------|-----------------------------|---------|----------|---------|---------------------------|---------|----------|---------|---------|---------|
|                                  |                     | Acute                  | Chronic  | HH (PWS) | HH      | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic  | HH (PWS) | HH      | Acute                       | Chronic | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) | HH      |         |         |
| Acenaphthene                     | 0                   | --                     | --       | 1.2E+03  | 2.7E+03 | --                    | --      | 7.5E+04  | 1.7E+05 | --                       | --       | 1.2E+02  | 2.7E+02 | --                          | --      | 7.5E+03  | 1.7E+04 | --                        | --      | 7.5E+03  | 1.7E+04 |         |         |
| Acrolein                         | 0                   | --                     | --       | 3.2E+02  | 7.8E+02 | --                    | --      | 2.0E+04  | 4.9E+04 | --                       | --       | 3.2E+01  | 7.8E+01 | --                          | --      | 2.0E+03  | 4.9E+03 | --                        | --      | 2.0E+03  | 4.9E+03 |         |         |
| Acrylonitrile                    | 0                   | --                     | --       | 5.9E-01  | 6.8E+00 | --                    | --      | 8.2E+01  | 9.2E+02 | --                       | --       | 5.9E-02  | 6.6E-01 | --                          | --      | 8.2E+00  | 9.2E+01 | --                        | --      | 8.2E+00  | 9.2E+01 |         |         |
| Aldrin c                         | 0                   | 3.0E+00                | --       | 1.3E-03  | 1.4E-03 | 1.4E+02               | --      | 1.8E-01  | 1.9E-01 | 7.5E-01                  | --       | 1.3E-04  | 1.4E-04 | 3.6E+01                     | --      | 1.8E-02  | 1.9E-02 | 3.6E+01                   | --      | 1.8E-02  | 1.9E-02 |         |         |
| Ammonia-N (mg/l)<br>(Yearly)     | 0                   | 1.20E+01               | 2.04E+00 | --       | --      | 5.8E+02               | 1.1E+02 | --       | --      | 2.99E+00                 | 5.10E-01 | --       | --      | 1.4E+02                     | 2.9E+01 | --       | --      | 1.4E+02                   | 2.9E+01 | --       | --      |         |         |
| Ammonia-N (mg/l)<br>(High Flow)  | 0                   | 1.20E+01               | 2.06E+00 | --       | --      | 8.6E+02               | 1.7E+02 | --       | --      | 3.01E+00                 | 5.15E-01 | --       | --      | 2.2E+02                     | 4.2E+01 | --       | --      | 2.2E+02                   | 4.2E+01 | --       | --      |         |         |
| Anthracene                       | 0                   | --                     | --       | 9.6E+03  | 1.1E+05 | --                    | --      | 6.0E+05  | 6.9E+06 | --                       | --       | 9.6E-02  | 1.1E+04 | --                          | --      | 6.0E+04  | 6.9E+05 | --                        | --      | 6.0E+04  | 6.9E+05 |         |         |
| Antimony                         | 1.25                | --                     | --       | 1.4E+01  | 4.3E+03 | --                    | --      | 8.0E+02  | 2.7E+05 | --                       | --       | 2.5E+00  | 4.3E+02 | --                          | --      | 8.1E+01  | 2.7E+04 | --                        | --      | 8.1E+01  | 2.7E+04 |         |         |
| Arsenic                          | 0.45                | 3.4E+02                | 1.5E+02  | 1.0E+01  | --      | 1.6E+04               | 7.6E+03 | 6.0E+02  | --      | 8.5E+01                  | 3.8E+01  | 1.4E+00  | --      | 4.1E+03                     | 1.9E+03 | 6.0E+01  | --      | 4.1E+03                   | 1.9E+03 | 6.0E+01  | --      |         |         |
| Barium                           | 52                  | --                     | --       | 2.0E+03  | --      | --                    | --      | 1.2E+05  | --      | --                       | --       | 2.5E+02  | --      | --                          | --      | 1.2E+04  | --      | --                        | --      | 1.2E+04  | --      |         |         |
| Benzene c                        | 0                   | --                     | --       | 1.2E+01  | 7.1E+02 | --                    | --      | 1.1E+03  | 9.9E+04 | --                       | --       | 1.2E+00  | 7.1E+01 | --                          | --      | 1.7E+02  | 9.9E+03 | --                        | --      | 1.7E+02  | 9.9E+03 |         |         |
| Benzidine <sup>c</sup>           | 0                   | --                     | --       | 1.2E-03  | 5.4E-03 | --                    | --      | 1.7E-01  | 7.5E-01 | --                       | --       | 1.2E-04  | 5.4E-04 | --                          | --      | 1.7E-02  | 7.5E-02 | --                        | --      | 1.7E-02  | 7.5E-02 |         |         |
| Benzo (a) anthracene c           | 0                   | --                     | --       | 4.4E-02  | 4.9E-01 | --                    | --      | 6.1E+00  | 6.8E+01 | --                       | --       | 4.4E-03  | 4.9E-02 | --                          | --      | 6.1E-01  | 6.8E+00 | --                        | --      | 6.1E-01  | 6.8E+00 |         |         |
| Benzo (b) fluoranthene c         | 0                   | --                     | --       | 4.4E-02  | 4.9E-01 | --                    | --      | 6.1E+00  | 6.8E+01 | --                       | --       | 4.4E-03  | 4.9E-02 | --                          | --      | 6.1E-01  | 6.8E+00 | --                        | --      | 6.1E-01  | 6.8E+00 |         |         |
| Benzo (k) fluoranthene c         | 0                   | --                     | --       | 4.4E-02  | 4.9E-01 | --                    | --      | 6.1E+00  | 6.8E+01 | --                       | --       | 4.4E-03  | 4.9E-02 | --                          | --      | 6.1E-01  | 6.8E+00 | --                        | --      | 6.1E-01  | 6.8E+00 |         |         |
| Benzo (a) pyrene c               | 0                   | --                     | --       | 4.4E-02  | 4.9E-01 | --                    | --      | 6.1E+00  | 6.8E+01 | --                       | --       | 4.4E-03  | 4.9E-02 | --                          | --      | 6.1E-01  | 6.8E+00 | --                        | --      | 6.1E-01  | 6.8E+00 |         |         |
| Bis2-Chloroethyl Ether           | 0                   | --                     | --       | 3.1E-01  | 1.4E+01 | --                    | --      | 1.9E+01  | 8.8E+02 | --                       | --       | 3.1E-02  | 1.4E+00 | --                          | --      | 1.9E+00  | 8.8E+01 | --                        | --      | 1.9E+00  | 8.8E+01 |         |         |
| Bis2-Chloroisopropyl Ether       | 0                   | --                     | --       | 1.4E+03  | 1.7E+05 | --                    | --      | 8.8E+04  | 1.1E+07 | --                       | --       | 1.4E+02  | 1.7E+04 | --                          | --      | 8.8E+03  | 1.1E+06 | --                        | --      | 8.8E+03  | 1.1E+06 |         |         |
| Bromoform <sup>c</sup>           | 0                   | --                     | --       | 4.4E+01  | 3.6E+03 | --                    | --      | 6.1E+03  | 5.0E+05 | --                       | --       | 4.4E+00  | 3.6E+02 | --                          | --      | 6.1E+02  | 5.0E+04 | --                        | --      | 6.1E+02  | 5.0E+04 |         |         |
| Butylbenzylphthalate             | 0                   | --                     | --       | 3.0E+03  | 5.2E+03 | --                    | --      | 1.9E+05  | 3.3E+05 | --                       | --       | 3.0E+02  | 5.2E+02 | --                          | --      | 1.9E+04  | 3.3E+04 | --                        | --      | 1.9E+04  | 3.3E+04 |         |         |
| Cadmium                          | 0                   | 7.2E+00                | 1.7E+00  | 5.0E+00  | --      | 3.4E+02               | 8.8E+01 | 3.1E+02  | --      | 1.8E+00                  | 4.3E-01  | 5.0E+01  | --      | 8.6E+01                     | 2.2E+01 | 3.1E+01  | --      | 8.6E+01                   | 2.2E+01 | 3.1E+01  | --      |         |         |
| Carbon Tetrachloride c           | 0                   | --                     | --       | 2.5E+00  | 4.4E+01 | --                    | --      | 3.5E+02  | 6.1E+03 | --                       | --       | 2.5E+01  | 4.4E+00 | --                          | --      | 3.5E+01  | 6.1E+02 | --                        | --      | 3.5E+01  | 6.1E+02 |         |         |
| Chlordane c                      | 0                   | 2.4E+00                | 4.3E-03  | 2.1E-02  | 2.2E-02 | 1.2E+02               | 2.2E-01 | 2.9E+00  | 3.1E+00 | 6.0E-01                  | 1.1E-03  | 2.1E-03  | 2.2E+03 | 2.9E+01                     | 3.1E-01 | 2.9E+01  | 5.5E-02 | 2.9E+01                   | 3.1E-01 | 2.9E+01  | 5.5E-02 |         |         |
| Chloride                         | 0                   | 8.6E+05                | 2.3E+05  | 2.5E+05  | --      | 4.1E+07               | 1.2E+07 | 1.6E+07  | --      | 2.2E+05                  | 5.8E+04  | 2.5E+04  | --      | 1.0E+07                     | 2.9E+06 | 1.6E+06  | --      | 1.0E+07                   | 2.9E+06 | 1.6E+06  | --      |         |         |
| TRC                              | 0                   | 1.9E+01                | 1.1E+01  | --       | --      | 9.1E+02               | 5.6E+02 | --       | --      | 4.8E+00                  | 2.8E+00  | --       | --      | 2.3E+02                     | 1.4E+02 | --       | --      | 4.3E+03                   | 1.3E+05 | --       | --      | 4.3E+03 | 1.3E+05 |
| Chlorobenzene                    | 0                   | --                     | --       | 6.8E+02  | 2.1E+04 | --                    | --      | 4.3E+04  | 1.3E+06 | --                       | --       | 6.8E+01  | 2.1E+03 | --                          | --      | 4.3E+03  | 1.3E+05 | --                        | --      | 4.3E+03  | 1.3E+05 |         |         |

| Parameter<br>(ug/l unless noted)                              | Background                        | Conc.   | Water Quality Criteria |         |          | Wasteload Allocations |         |         | Antidegradation Baseline |         |         | Antidegradation Allocations |          |         | Most Limiting Allocations |         |          |
|---|-----------------------------------|---------|------------------------|---------|----------|-----------------------|---------|---------|--------------------------|---------|---------|-----------------------------|----------|---------|---------------------------|---------|----------|
|   |                                   |         | Acute                  | Chronic | HH (PWS) | HH                    | Acute   | Chronic | HH (PWS)                 | HH      | Acute   | Chronic                     | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) |
| Chlorobromomethane <sup>c</sup>                               | 0                                 | -       | -                      | 4.1E+00 | 3.4E+02  | -                     | -       | 5.7E+02 | 4.7E+04                  | -       | -       | 4.1E+01                     | 3.4E+01  | -       | -                         | 5.7E+01 | 4.7E+03  |
| Chloroform <sup>c</sup>                                       | 0                                 | -       | -                      | 3.5E+02 | 2.9E+04  | -                     | -       | 4.9E+04 | 4.0E+06                  | -       | -       | 3.5E+01                     | 2.9E+03  | -       | -                         | 4.9E+03 | 4.0E+05  |
| 2-Chloronaphthalene   | 0                                 | -       | -                      | 1.7E+03 | 4.3E+03  | -                     | -       | 1.1E+05 | 2.7E+05                  | -       | -       | 1.7E+02                     | 4.3E+02  | -       | -                         | 1.1E+04 | 2.7E+04  |
| 2-Chlorophenol  | 0                                 | -       | -                      | 1.2E+02 | 4.0E+02  | -                     | -       | 7.5E+03 | 2.5E+04                  | -       | -       | 1.2E+01                     | 4.0E+01  | -       | -                         | 7.5E+02 | 2.5E+03  |
| Chlorpyrifos  | 0                                 | 8.3E-02 | 4.1E-02                | -       | -        | 4.0E+00               | 2.1E+00 | -       | -                        | 2.1E-02 | 1.0E-02 | -                           | -        | 1.0E+00 | 5.2E-01                   | -       | -        |
| Chromium III  | 0                                 | 8.8E+02 | 1.1E+02                | -       | -        | 4.2E+04               | 5.9E+03 | -       | -                        | 2.4E+02 | 2.9E+01 | -                           | -        | 1.1E+04 | 1.5E+03                   | -       | -        |
| Chromium VI   | 0                                 | 1.6E+01 | 1.1E+01                | -       | -        | 7.7E+02               | 5.6E+02 | -       | -                        | 4.0E+00 | 2.9E+00 | -                           | -        | 1.9E+02 | 1.4E+02                   | -       | -        |
| Chromium, Total   | 0.13                              | -       | -                      | 1.0E+02 | -        | -                     | -       | 6.3E+03 | -                        | -       | -       | 1.0E+01                     | -        | -       | -                         | 6.3E+02 | -        |
| Chrysene <sup>c</sup>   | 0                                 | -       | -                      | 4.4E-02 | 4.9E-01  | -                     | -       | 6.1E+00 | 6.8E+01                  | -       | -       | 4.4E-03                     | 4.9E-02  | -       | -                         | 6.1E-01 | 6.8E+00  |
| Copper  | 0.22                              | 2.2E+01 | 1.4E+01                | 1.3E+03 | -        | 1.1E+03               | 7.1E+02 | 8.2E+04 | -                        | 5.7E+00 | 3.7E+00 | 1.3E+02                     | -        | 2.6E+02 | 1.8E+02                   | 8.2E+03 | -        |
| Cyanide   | 0                                 | 2.2E+01 | 5.2E+00                | 7.0E+02 | 2.2E+05  | 1.1E+03               | 2.7E+02 | 4.4E+04 | 1.3E+07                  | 5.5E+00 | 1.3E+00 | 7.0E+01                     | 2.2E+04  | 6.6E+01 | 4.4E+03                   | 6.6E+01 | 4.4E+03  |
| DDD <sup>c</sup>  | 0                                 | -       | -                      | 8.3E-03 | 8.4E-03  | -                     | -       | 1.2E+00 | 1.2E+00                  | -       | -       | 8.3E-04                     | 8.4E-04  | -       | -                         | 1.2E-01 | 1.2E-01  |
| DDE <sup>c</sup>  | 0                                 | -       | -                      | 5.9E-03 | 5.9E-03  | -                     | -       | 8.2E-01 | 8.2E-01                  | -       | -       | 5.9E-04                     | 5.9E-04  | -       | -                         | 8.2E-02 | 8.2E-02  |
| DDT <sup>c</sup>  | 0                                 | 1.1E+00 | 1.0E-03                | 5.9E-03 | 5.9E-03  | 5.3E+01               | 5.1E-02 | 8.2E-01 | 2.8E-01                  | 2.5E-04 | 5.9E-04 | 1.3E+01                     | 1.3E-02  | 8.2E-02 | 8.2E-02                   | 8.2E-02 | 8.2E-02  |
| Demeton   | 0                                 | -       | 1.0E-01                | -       | -        | 5.1E-00               | -       | -       | -                        | 2.5E-02 | -       | -                           | -        | 1.3E+00 | -                         | -       | -        |
| Dibenz(a,h)anthracene <sup>c</sup>                            | 0                                 | -       | -                      | 4.4E-02 | 4.9E-01  | -                     | -       | 6.1E+00 | 6.8E+01                  | -       | -       | 4.4E-03                     | 4.9E-02  | -       | -                         | 6.1E-01 | 6.8E+00  |
| DiButyl phthalate   | 0                                 | -       | -                      | 2.7E+03 | 1.2E+04  | -                     | -       | 1.7E+05 | 7.5E+05                  | -       | -       | 2.7E+02                     | 1.2E+03  | -       | -                         | 1.7E+04 | 7.5E+04  |
| Dichlormethane  | (Methylene Chloride) <sup>c</sup> | 0       | -                      | 4.7E+01 | 1.6E+04  | -                     | -       | 6.5E+03 | 2.2E+06                  | -       | -       | 4.7E+00                     | 1.6E+03  | -       | -                         | 6.5E+02 | 2.2E+05  |
| 1,2-Dichlorobenzene   | 0                                 | -       | -                      | 2.7E+03 | 1.7E+04  | -                     | -       | 1.7E+05 | 1.1E+06                  | -       | -       | 2.7E+02                     | 1.7E+03  | -       | -                         | 1.7E+04 | 1.1E+05  |
| 1,3-Dichlorobenzene   | 0                                 | -       | -                      | 4.0E+02 | 2.6E+03  | -                     | -       | 2.5E+04 | 1.6E+05                  | -       | -       | 4.0E+01                     | 2.6E+02  | -       | -                         | 2.5E+03 | 1.6E+04  |
| 1,4-Dichlorobenzene   | 0                                 | -       | -                      | 4.0E+02 | 2.6E+03  | -                     | -       | 2.5E+04 | 1.6E+05                  | -       | -       | 4.0E+01                     | 2.6E+02  | -       | -                         | 2.5E+03 | 1.6E+04  |
| 3,3-Dichlorobenzidin <sup>c</sup>                             | 0                                 | -       | -                      | 4.0E-01 | 7.7E-01  | -                     | -       | 5.6E+01 | 1.1E+02                  | -       | -       | 4.0E-02                     | 7.7E+02  | -       | -                         | 5.6E+00 | 1.1E+01  |
| Dichlorobromomethane <sup>c</sup>                             | 0                                 | -       | -                      | 5.6E+00 | 4.6E+02  | -                     | -       | 7.8E+02 | 6.4E+04                  | -       | -       | 5.6E+01                     | 4.6E+01  | -       | -                         | 7.8E+01 | 6.4E+03  |
| 1,2-Dichloroethane <sup>c</sup>                               | 0                                 | -       | -                      | 3.8E+00 | 9.9E+02  | -                     | -       | 5.3E+02 | 1.4E+05                  | -       | -       | 3.8E+01                     | 9.9E+01  | -       | -                         | 5.3E+01 | 1.4E+04  |
| 1,1-Dichloroethylene  | 0                                 | -       | -                      | 3.1E+02 | 1.7E+04  | -                     | -       | 1.9E+04 | 1.1E+06                  | -       | -       | 3.1E+01                     | 1.7E+03  | -       | -                         | 1.9E+03 | 1.1E+05  |
| 1,2-trans-dichloroethylene                                    | 0                                 | -       | -                      | 7.0E+02 | 1.4E+05  | -                     | -       | 4.4E+04 | 8.8E+06                  | -       | -       | 7.0E+01                     | 1.4E+04  | -       | -                         | 4.4E+03 | 8.8E+05  |
| 2,4-Dichlorophenol  | 0                                 | -       | -                      | 9.3E+01 | 7.5E+02  | -                     | -       | 5.6E+03 | 5.0E+04                  | -       | -       | 9.3E+00                     | 7.9E+01  | -       | -                         | 5.8E+02 | 5.0E+03  |
| 2,4-Dichlorophenoxyacetic acid (2,4-D)                        | 0                                 | -       | -                      | 1.0E+02 | -        | -                     | -       | 6.3E+03 | -                        | -       | -       | 1.0E+01                     | -        | -       | -                         | 6.3E+02 | -        |
| 1,2-Dichloropropane <sup>c</sup>                              | 0                                 | -       | -                      | 5.2E+00 | 3.9E+02  | -                     | -       | 7.2E+02 | 5.4E+04                  | -       | -       | 5.2E+01                     | 3.9E+01  | -       | -                         | 7.2E+01 | 5.4E+03  |
| 1,3-Dichloropropene   | 0                                 | -       | -                      | 1.0E+01 | 1.7E+03  | -                     | -       | 6.3E+02 | 1.1E+05                  | -       | -       | 1.0E+00                     | 1.7E+02  | -       | -                         | 6.3E+01 | 1.1E+04  |
| Dieldrin <sup>c</sup>   | 0                                 | 2.4E-01 | 5.6E-02                | 1.4E-03 | 1.2E+01  | 2.9E+01               | 1.9E+01 | 6.0E-01 | 1.4E-02                  | 1.4E-04 | 1.4E-04 | 2.9E+00                     | 7.1E-01  | 2.9E+00 | 7.1E-01                   | 1.9E-02 | 1.9E-02  |
| Diethyl Phthalate   | 0                                 | -       | -                      | 2.3E+04 | 1.2E+05  | -                     | -       | 1.4E+06 | 7.5E+06                  | -       | -       | 2.3E+03                     | 1.2E+04  | -       | -                         | 1.4E+05 | 7.5E+05  |
| Di-2-Ethylhexyl Phthalate <sup>c</sup>                        | 0                                 | -       | -                      | 1.8E+01 | 5.9E+01  | -                     | -       | 2.5E+03 | 8.2E+03                  | -       | -       | 1.8E+00                     | 5.9E+00  | -       | -                         | 2.5E+02 | 8.2E+02  |
| 2,4-Dimethylphenol  | 0                                 | -       | -                      | 5.4E+02 | 2.3E+03  | -                     | -       | 3.4E+04 | 1.4E+05                  | -       | -       | 5.4E+01                     | 2.3E+02  | -       | -                         | 3.4E+03 | 1.4E+04  |
| Dimethyl Phthalate  | 0                                 | -       | -                      | 3.1E+05 | 2.9E+06  | -                     | -       | 2.0E+07 | 1.8E+08                  | -       | -       | 3.1E+04                     | 2.9E+05  | -       | -                         | 2.0E+06 | 1.8E+07  |
| Di-n-Butyl Phthalate  | 0                                 | -       | -                      | 2.7E+03 | 1.2E+04  | -                     | -       | 1.7E+05 | 7.5E+05                  | -       | -       | 2.7E+02                     | 1.2E+03  | -       | -                         | 1.7E+04 | 7.5E+04  |
| 2,4-Dinitrophenol   | 0                                 | -       | -                      | 7.0E+01 | 1.4E+04  | -                     | -       | 4.4E+03 | 8.8E+05                  | -       | -       | 7.0E+00                     | 1.4E+03  | -       | -                         | 4.4E+02 | 8.8E+04  |
| 2-Methyl-4,6-Dinitrophenol                                    | 0                                 | -       | -                      | 1.3E+01 | 7.65E+02 | -                     | -       | 8.4E+02 | 4.8E+04                  | -       | -       | 1.3E+00                     | 7.7E+01  | -       | -                         | 8.4E+01 | 4.8E+03  |
| 2,4-Dinitrotoluene <sup>c</sup>                               | 0                                 | -       | -                      | 1.1E+00 | 9.1E+01  | -                     | -       | 1.5E+02 | 1.3E+04                  | -       | -       | 1.1E+01                     | 9.1E+00  | -       | -                         | 1.5E+01 | 1.3E+03  |
| Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) <sup>(ppq)</sup> | 0                                 | -       | -                      | 1.2E-06 | 1.2E-06  | -                     | -       | 1.7E-04 | 1.7E-04                  | -       | -       | 1.2E-07                     | 1.2E-07  | -       | -                         | 1.7E-05 | 1.7E-05  |
| 1,2-Diphenylhydrazine <sup>c</sup>                            | 0                                 | -       | -                      | 4.0E-01 | 5.4E+00  | -                     | -       | 5.6E+01 | 7.5E+02                  | -       | -       | 4.0E-02                     | 5.4E-01  | -       | -                         | 5.6E+00 | 7.5E+01  |
| Alpha-Endosulfan  | 0                                 | 2.2E-01 | 5.6E-02                | 1.1E+02 | 2.4E+02  | 1.1E+01               | 2.9E+00 | 6.9E+03 | 1.5E+04                  | 5.5E-02 | 1.4E-02 | 1.1E+01                     | 2.4E+01  | 2.6E+00 | 7.1E-01                   | 2.6E+00 | 7.1E-01  |
| Beta-Endosulfan   | 0                                 | 2.2E-01 | 5.6E-02                | 1.1E+02 | 2.4E+02  | 1.1E+01               | 2.9E+00 | 6.9E+03 | 1.5E+04                  | 5.5E-02 | 1.4E-02 | 1.1E+01                     | 2.4E+01  | 2.6E+00 | 7.1E-01                   | 2.6E+00 | 7.1E-01  |
| Endosulfan Sulfate  | 0                                 | -       | -                      | 1.1E+02 | 2.4E+02  | -                     | -       | 6.9E+03 | 1.5E+04                  | -       | -       | 1.1E+01                     | 2.4E+01  | -       | -                         | 6.9E+02 | 1.5E+03  |
| Endrin  | 0                                 | 8.6E-02 | 3.6E-02                | 7.6E-01 | 8.1E-01  | 4.1E+00               | 1.8E+00 | 5.1E+01 | 2.2E-02                  | 9.0E-03 | 7.6E-02 | 8.1E-02                     | 1.0E+00  | 4.6E+00 | 5.1E+00                   | 4.6E+00 | 5.1E+00  |
| Endrin Aldehyde   | 0                                 | -       | -                      | 7.6E-01 | 8.1E-01  | -                     | -       | 4.8E+01 | 5.1E+01                  | -       | -       | 7.6E-02                     | 8.1E-02  | -       | -                         | 4.8E+00 | 5.1E+00  |

| Parameter                              | Background Conc. | Water Quality Criteria |         |          | Wasteload Allocations |         |         | Antidegradation Baseline |         |         | Antidegradation Allocations |          |         | Most Limiting Allocations |         |          |         |
|--|------------------|------------------------|---------|----------|-----------------------|---------|---------|--------------------------|---------|---------|-----------------------------|----------|---------|---------------------------|---------|----------|---------|
|  |                  | Acute                  | Chronic | HH (PWS) | HH                    | Acute   | Chronic | HH (PWS)                 | HH      | Acute   | Chronic                     | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) | HH      |
| Ethylbenzene                           | 0                | -                      | -       | 3.1E+03  | 2.9E+04               | -       | -       | 1.9E+05                  | 1.8E+06 | -       | -                           | 3.1E+02  | 2.9E+03 | -                         | -       | 1.9E+04  | 1.8E+05 |
| Fluoranthene                           | 0                | -                      | -       | 3.0E+02  | 3.7E+02               | -       | -       | 1.9E+04                  | 2.3E+04 | -       | -                           | 3.0E+01  | 3.7E+01 | -                         | -       | 1.9E+03  | 2.3E+03 |
| Fluorene                               | 0                | -                      | -       | 1.3E+03  | 1.4E+04               | -       | -       | 8.2E+04                  | 8.8E+05 | -       | -                           | 1.3E+02  | 1.4E+03 | -                         | -       | 8.2E+03  | 8.8E+04 |
| Foaming Agents                         | 0                | -                      | -       | 5.0E+02  | -                     | -       | -       | 3.1E+04                  | -       | -       | -                           | 5.0E+01  | -       | -                         | -       | 3.1E+03  | -       |
| Guthion                                | 0                | -                      | -       | 1.0E-02  | -                     | -       | -       | 5.1E-01                  | -       | -       | -                           | 2.5E-03  | -       | -                         | -       | 1.3E-01  | -       |
| Hepachlor                              | c                | 0                      | 5.2E-01 | 3.8E-03  | 2.1E-03               | 2.1E-03 | 2.5E+01 | 1.9E-01                  | 2.9E-01 | 1.3E-01 | 9.5E-04                     | 2.1E-04  | 6.2E+00 | 4.8E-02                   | 2.9E-02 | 2.9E-02  |         |
| Hepachlor Epoxide <sup>f</sup>         | 0                | 5.2E-01                | 3.8E-03 | 1.0E-03  | 1.1E-03               | 2.5E+01 | 1.9E-01 | 1.4E-01                  | 1.5E-01 | 1.3E-01 | 9.5E-04                     | 1.0E-04  | 6.2E+00 | 4.8E-02                   | 1.4E-02 | 1.5E-02  |         |
| Hexachlorobenzene <sup>f</sup>         | 0                | -                      | -       | 7.5E-03  | 7.7E-03               | -       | -       | 1.0E+00                  | 1.1E+00 | -       | -                           | 7.5E-04  | 7.7E-04 | -                         | -       | 1.0E-01  | -       |
| Hexachlorobutadiene <sup>f</sup>       | 0                | -                      | -       | 4.4E+00  | 5.0E+02               | -       | -       | 6.1E+02                  | 7.0E+04 | -       | -                           | 4.4E-01  | 5.0E+01 | -                         | -       | 6.1E+01  | 7.0E+03 |
| Hexachlorocyclohexane                  | 0                | -                      | -       | 3.9E-02  | 1.3E-01               | -       | -       | 5.4E+00                  | 1.8E+01 | -       | -                           | 3.9E-03  | 1.3E-02 | -                         | -       | 5.4E-01  | 1.8E+00 |
| Alpha-BHC <sup>c</sup>                 | 0                | -                      | -       | 1.4E-01  | 4.6E-01               | -       | -       | 1.9E+01                  | 6.4E+01 | -       | -                           | 1.4E-02  | 4.6E+02 | -                         | -       | 1.9E+00  | 6.4E+00 |
| Beta-BHC <sup>c</sup>                  | 0                | -                      | -       | 1.9E+01  | 8.9E+01               | -       | -       | 2.6E+03                  | 8.8E+01 | -       | -                           | 1.9E+00  | 8.9E+00 | -                         | -       | 2.6E+02  | 1.2E+03 |
| Hexachlorocyclohexane                  | 0                | -                      | -       | 2.0E+00  | -                     | -       | -       | 1.0E+02                  | -       | -       | -                           | 5.0E-01  | -       | -                         | -       | 2.6E+01  | -       |
| Gamma-BHC <sup>c</sup> (Lindane)       | 0                | 9.5E-01                | -       | 6.3E-01  | 4.6E+01               | -       | -       | 2.6E+01                  | 2.4E+01 | -       | -                           | 1.9E-02  | 6.3E-02 | 1.1E+01                   | -       | 2.6E+00  | 8.8E+00 |
| Hexachlorocyclopentadiene              | 0                | -                      | -       | 2.4E+02  | 1.7E+04               | -       | -       | 1.5E+04                  | 1.1E+06 | -       | -                           | 2.4E+01  | 1.7E+03 | -                         | -       | 1.5E+03  | 1.1E+05 |
| Hexachloroethane <sup>f</sup>          | 0                | -                      | -       | 1.9E+01  | 8.9E+01               | -       | -       | 2.6E+03                  | 1.2E+04 | -       | -                           | 1.9E+00  | 8.9E+00 | -                         | -       | 2.6E+02  | 1.2E+03 |
| Hydrogen Sulfide                       | 0                | -                      | -       | 2.0E+00  | -                     | -       | -       | 1.0E+02                  | -       | -       | -                           | 5.0E-01  | -       | -                         | -       | 2.6E+01  | -       |
| Indeno (1,2,3-cd) pyrene <sup>c</sup>  | 0                | -                      | -       | 4.4E-02  | 4.9E-01               | -       | -       | 6.1E+00                  | 6.8E+01 | -       | -                           | 4.4E-03  | 4.9E-02 | -                         | -       | 6.1E-01  | 6.8E+00 |
| Iron                                   | 0                | -                      | -       | 3.0E+02  | -                     | -       | -       | 1.9E+04                  | -       | -       | -                           | 3.0E+01  | -       | -                         | -       | 1.9E+03  | -       |
| Isophorone <sup>c</sup>                | 0                | -                      | -       | 3.6E+02  | 2.6E+04               | -       | -       | 5.0E+04                  | 3.6E+06 | -       | -                           | 3.6E+01  | 2.6E+03 | -                         | -       | 5.0E+03  | 3.6E+05 |
| Kepone                                 | 0                | -                      | 0.0E+00 | -        | -                     | -       | 0.0E+00 | -                        | -       | -       | 0.0E+00                     | -        | -       | -                         | 0.0E+00 | -        |         |
| Lead                                   | 0                | 2.3E+02                | 2.7E+01 | 1.5E+01  | -                     | 1.1E+04 | 1.4E-03 | 9.4E+02                  | -       | 5.5E+01 | 6.7E+00                     | 1.5E+00  | -       | 2.8E+03                   | 3.4E+02 | 9.4E+01  | -       |
| Malathion                              | 0                | -                      | 1.0E-01 | -        | -                     | 5.1E+00 | -       | -                        | -       | 2.5E-02 | -                           | -        | -       | 1.3E+00                   | -       | -        |         |
| Manganese                              | 20               | -                      | -       | 5.0E+01  | -                     | -       | -       | 1.9E+03                  | -       | -       | -                           | 2.3E+01  | -       | -                         | -       | 2.1E+02  | -       |
| Mercury                                | 0                | 1.4E+00                | 7.7E-01 | 5.0E-02  | 5.1E-02               | 6.7E+01 | 3.9E+01 | 3.1E+00                  | 3.2E+00 | 3.5E-01 | 1.9E-01                     | 5.0E-03  | 5.1E-03 | 1.7E+01                   | 9.8E+00 | 3.1E-01  | 3.2E-01 |
| Methyl Bromide                         | 0                | -                      | 4.8E+01 | 4.0E+03  | -                     | -       | 3.0E+03 | 2.5E+05                  | -       | -       | 4.8E+00                     | 4.0E+02  | -       | -                         | 3.0E+02 | 2.5E+04  |         |
| Methoxychlor                           | 0                | -                      | 3.0E-02 | 1.0E+02  | -                     | -       | 1.5E+00 | 6.3E+03                  | -       | -       | 7.5E-03                     | 1.0E+01  | -       | -                         | 3.8E-01 | 6.3E+02  | -       |
| Mirex                                  | 0                | -                      | 0.0E+00 | -        | -                     | 0.0E+00 | -       | -                        | -       | 0.0E+00 | -                           | -        | -       | 0.0E+00                   | -       | -        |         |
| Monochlorobenzene                      | 0                | -                      | 6.8E+02 | 2.1E+04  | -                     | -       | 4.3E+04 | 1.3E+06                  | -       | -       | 6.8E+01                     | 2.1E+03  | -       | -                         | 4.3E+03 | 1.3E+05  |         |
| Nickel                                 | 0.38             | 2.9E+02                | 3.2E+01 | 6.1E+02  | 4.6E+03               | 1.4E+04 | 1.6E-03 | 3.8E+04                  | 2.8E+05 | 7.2E+01 | 8.2E+00                     | 6.1E+01  | 4.6E+02 | 3.4E+03                   | 3.8E+03 | 4.0E+02  | 3.9E+04 |
| Nitrate (as N)                         | 0                | -                      | -       | 1.0E+04  | -                     | -       | -       | 6.3E+05                  | -       | -       | -                           | 1.0E+03  | -       | -                         | -       | 6.3E+04  | -       |
| Nitrobenzene                           | 0                | -                      | -       | 1.7E+01  | 1.9E+03               | -       | -       | 1.1E+03                  | 1.2E+05 | -       | -                           | 1.7E+00  | 1.9E+02 | -                         | -       | 1.1E+02  | 1.2E+04 |
| N-Nitrosodimethylamine <sup>f</sup>    | 0                | -                      | -       | 6.9E-03  | 8.1E+01               | -       | -       | 9.6E-01                  | 1.1E+04 | -       | -                           | 6.9E-04  | 8.1E+00 | -                         | -       | 9.6E-02  | 1.1E+03 |
| N-Nitrosodiphenylamine <sup>f</sup>    | 0                | -                      | -       | 5.0E-01  | 1.6E+02               | -       | -       | 7.0E+03                  | 2.2E+04 | -       | -                           | 5.0E+00  | 1.6E+01 | -                         | -       | 7.0E+02  | 2.2E+03 |
| N-Nitrosodi-n-propylamine <sup>f</sup> | 0                | -                      | -       | 5.0E-02  | 1.4E+01               | -       | -       | 7.0E+00                  | 1.9E+03 | -       | -                           | 5.0E-03  | 1.4E+00 | -                         | -       | 7.0E-01  | 1.9E+02 |
| Parathion                              | 0                | 6.5E-02                | 1.3E-02 | -        | -                     | 3.1E+00 | 6.6E-01 | -                        | -       | 1.6E-02 | 3.3E-03                     | -        | -       | 7.8E-01                   | 1.7E-01 | -        | -       |
| PCB-1016                               | 0                | -                      | 1.4E-02 | -        | -                     | -       | 7.1E-01 | -                        | -       | -       | 3.5E-03                     | -        | -       | -                         | 1.8E-01 | -        | -       |
| PCB-1221                               | 0                | -                      | 1.4E-02 | -        | -                     | -       | 7.1E-01 | -                        | -       | -       | 3.5E-03                     | -        | -       | -                         | 1.8E-01 | -        | -       |
| PCB-1232                               | 0                | -                      | 1.4E-02 | -        | -                     | -       | 7.1E-01 | -                        | -       | -       | 3.5E-03                     | -        | -       | -                         | 1.8E-01 | -        | -       |
| PCB-1242                               | 0                | -                      | 1.4E-02 | -        | -                     | -       | 7.1E-01 | -                        | -       | -       | 3.5E-03                     | -        | -       | -                         | 1.8E-01 | -        | -       |
| PCB-1248                               | 0                | -                      | 1.4E-02 | -        | -                     | -       | 7.1E-01 | -                        | -       | -       | 3.5E-03                     | -        | -       | -                         | 1.8E-01 | -        | -       |
| PCB-1254                               | 0                | -                      | 1.4E-02 | -        | -                     | -       | 7.1E-01 | -                        | -       | -       | 3.5E-03                     | -        | -       | -                         | 1.8E-01 | -        | -       |
| PCB-1260                               | 0                | -                      | 1.4E-02 | -        | -                     | -       | 7.1E-01 | -                        | -       | -       | 3.5E-03                     | -        | -       | -                         | 1.8E-01 | -        | -       |
| PCB Total <sup>f</sup>                 | 0                | -                      | -       | 1.7E-03  | 1.7E-03               | -       | -       | 2.4E-01                  | 2.4E-01 | -       | -                           | 1.7E-04  | 1.7E-04 | -                         | -       | 2.4E-02  | 2.4E-02 |

| Parameter<br>(ug/l unless noted)                      | Background<br>Conc. | Water Quality Criteria |         |          | Wasteload Allocations |         |         | Antidegradation Baseline |         |         | Antidegradation Allocations |          |         | Most Limiting Allocations |         |          |         |
|---|---------------------|------------------------|---------|----------|-----------------------|---------|---------|--------------------------|---------|---------|-----------------------------|----------|---------|---------------------------|---------|----------|---------|
|   |                     | Acute                  | Chronic | HH (PWS) | HH                    | Acute   | Chronic | HH (PWS)                 | HH      | Acute   | Chronic                     | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) | HH      |
| Pentachlorophenol <sup>c</sup>                        | 0                   | 1.6E+01                | 1.2E+01 | 2.8E+00  | 8.2E+01               | 7.7E+02 | 6.3E+02 | 3.9E+02                  | 1.1E+04 | 4.0E+00 | 3.1E+00                     | 2.8E+01  | 8.2E+00 | 1.9E+02                   | 1.6E+02 | 3.9E+01  | 1.1E+03 |
| Phenol  | 0                   | -                      | -       | 2.1E+04  | 4.6E+06               | -       | -       | 1.3E+06                  | 2.9E+08 | -       | -                           | 2.1E+03  | 4.6E+05 | -                         | -       | 1.3E+05  | 2.9E+07 |
| Pyrene  | 0                   | -                      | -       | 9.6E+02  | 1.1E+04               | -       | -       | 6.0E+04                  | 6.9E+05 | -       | -                           | 9.6E+01  | 1.1E+03 | -                         | -       | 6.0E+03  | 6.9E+04 |
| Radionuclides (pCi/l<br>except Beta/Photon)           | 0                   | -                      | -       | -        | -                     | -       | -       | -                        | -       | -       | -                           | -        | -       | -                         | -       | -        | -       |
| Gross Alpha Activity                                  | 0                   | -                      | -       | 1.5E+01  | 1.5E+01               | -       | -       | 9.4E+02                  | 9.4E+02 | -       | -                           | 1.5E+00  | 1.5E+00 | -                         | -       | 9.4E+01  | 9.4E+01 |
| Beta and Photon Activity<br>(mrem/y)                  | 0                   | -                      | -       | 4.0E+00  | 4.0E+00               | -       | -       | 2.5E+02                  | 2.5E+02 | -       | -                           | 4.0E-01  | 4.0E-01 | -                         | -       | 2.5E+01  | 2.5E+01 |
| Srtronium-90  | 0                   | -                      | -       | 8.0E+00  | 8.0E+00               | -       | -       | 5.0E+02                  | 5.0E+02 | -       | -                           | 8.0E-01  | 8.0E-01 | -                         | -       | 5.0E+01  | 5.0E+01 |
| Tritium   | 0                   | -                      | -       | 2.0E+04  | 2.0E+04               | -       | -       | 1.3E+06                  | 1.3E+06 | -       | -                           | 2.0E+03  | 2.0E+03 | -                         | -       | 1.3E+05  | 1.3E+05 |
| Selenium  | 0                   | 2.0E+01                | 5.0E+00 | 1.7E+02  | 1.1E+04               | 9.6E+02 | 2.6E+02 | 1.1E+04                  | 6.9E+05 | 5.0E+00 | 1.3E+00                     | 1.7E+01  | 1.1E+03 | 2.4E+02                   | 6.4E+01 | 1.1E+03  | 6.9E+04 |
| Silver  | 0                   | 8.6E+00                | -       | -        | -                     | 4.1E+02 | -       | -                        | -       | 2.2E+00 | -                           | -        | -       | 1.0E+02                   | -       | -        | -       |
| Sulfate   | 0                   | -                      | -       | 2.5E+05  | -                     | -       | -       | 1.6E+07                  | -       | -       | -                           | 2.5E+04  | -       | -                         | -       | 1.6E+06  | -       |
| 1,1,2,2-Tetrachloroethane <sup>f</sup>                | 0                   | -                      | -       | 1.7E+00  | 1.1E+02               | -       | -       | 2.4E+02                  | 1.5E+04 | -       | -                           | 1.7E-01  | 1.1E+01 | -                         | -       | 2.4E+01  | 1.5E+03 |
| Tetrachloroethylene <sup>f</sup>                      | 0                   | -                      | -       | 8.0E+00  | 8.9E+01               | -       | -       | 1.1E+03                  | 1.2E+04 | -       | -                           | 8.0E-01  | 8.9E+00 | -                         | -       | 1.1E+02  | 1.2E+03 |
| Thallium  | 0                   | -                      | -       | 1.7E+00  | 6.3E+00               | -       | -       | 1.1E+03                  | 1.2E+04 | -       | -                           | 1.7E-01  | 6.3E-01 | -                         | -       | 1.1E+01  | 4.0E+01 |
| Toluene   | 0                   | -                      | -       | 6.8E+03  | 2.0E+05               | -       | -       | 4.3E+05                  | 1.3E+07 | -       | -                           | 6.8E+02  | 2.0E+04 | -                         | -       | 4.3E+04  | 1.3E+06 |
| Total dissolved solids                                | 0                   | -                      | -       | 5.0E+05  | -                     | -       | -       | 3.1E+07                  | -       | -       | -                           | 5.0E+04  | -       | -                         | -       | 3.1E+06  | -       |
| Toxaphene <sup>c</sup>                                | 0                   | 7.3E-01                | 2.0E-04 | 7.3E-03  | 7.5E-03               | 3.5E+01 | 1.0E-02 | 1.0E+00                  | 1.8E-01 | 5.0E-05 | 7.3E-04                     | 7.5E-04  | 8.8E+00 | 2.6E-03                   | 1.0E-01 | 8.8E+00  | 1.0E-01 |
| Tributyltin   | 0                   | 4.6E-01                | 6.3E-02 | -        | -                     | 2.2E+01 | 3.2E+00 | -                        | -       | 1.2E-01 | 1.6E-02                     | -        | -       | 5.5E+00                   | 8.0E-01 | -        | -       |
| 1,2,4-Trichlorobenzene                                | 0                   | -                      | -       | 2.6E+02  | 9.4E+02               | -       | -       | 1.6E+04                  | 5.9E+04 | -       | -                           | 2.6E+01  | 9.4E+01 | -                         | -       | 1.6E+03  | 5.9E+03 |
| 1,1,2-Trichloroethane <sup>f</sup>                    | 0                   | -                      | -       | 6.0E+00  | 4.2E+02               | -       | -       | 8.4E+02                  | 5.8E+04 | -       | -                           | 6.0E-01  | 4.2E+01 | -                         | -       | 8.4E+01  | 5.8E+03 |
| Trichloroethylene <sup>c</sup>                        | 0                   | -                      | -       | 2.7E+01  | 8.1E+02               | -       | -       | 3.8E+03                  | 1.1E+05 | -       | -                           | 2.7E+00  | 8.1E+01 | -                         | -       | 3.8E+02  | 1.1E+04 |
| 2,4,6-Trichlorophenol <sup>c</sup>                    | 0                   | -                      | -       | 2.1E+01  | 6.5E+01               | -       | -       | 2.9E+03                  | 9.1E+03 | -       | -                           | 2.1E+00  | 6.5E+00 | -                         | -       | 2.9E+02  | 9.1E+02 |
| 2-(2,4,5-Trichlorophenoxy)<br>propionic acid (Silvex) | 0                   | -                      | -       | 5.0E+01  | -                     | -       | -       | 3.1E+03                  | -       | -       | -                           | 5.0E+00  | -       | -                         | -       | 3.1E+02  | -       |
| Vinyl Chloride <sup>f</sup>                           | 0                   | -                      | -       | 2.3E-01  | 6.1E+01               | -       | -       | 3.2E+01                  | 8.5E+03 | -       | -                           | 2.3E-02  | 6.1E+00 | -                         | -       | 3.2E+00  | 8.5E+02 |
| Zinc  | 2.2                 | 1.8E+02                | 1.9E+02 | 9.1E+03  | 6.9E+04               | 8.7E+03 | 9.4E+03 | 5.7E+05                  | 4.3E+06 | 4.8E+01 | 4.8E+01                     | 9.1E+02  | 6.9E+03 | 2.2E+03                   | 5.7E+04 | 2.2E+03  | 4.3E+05 |

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipal
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.

Antidegradation WLAs are based upon a complete mix.

6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) / human health

= (0.1(WQC - background conc.) + background conc.) / human health

7. WLAs established at the following stream flows: 1Q10 for Acute, 3Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 3QQ5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Note: do not use QL's lower than the minimum QL's provided in agency guidance

| Metal        | Target Value (SSTV) |
|--------------|---------------------|
| Antimony     | 8.1E+01             |
| Arsenic      | 6.0E+01             |
| Barium       | 1.2E+04             |
| Cadmium      | 1.3E+01             |
| Chromium III | 8.8E+02             |
| Chromium VI  | 7.7E+01             |
| Copper       | 1.1E+02             |
| Iron         | 1.9E+03             |
| Lead         | 9.4E+01             |
| Manganese    | 2.1E+02             |
| Mercury      | 3.1E-01             |
| Nickel       | 2.4E+02             |
| Selenium     | 3.8E+01             |
| Silver       | 4.1E+01             |
| Zinc         | 8.7E+02             |

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: BP Products NA - Montvale Terminal

Permit No.: VA0054577

Receiving Stream: South Fork of Goose Creek - Hydrostatic Testing via Outfall 001

Version: OWP Guidance Memo 00-2011 (8/24/00)

| Stream Information                      |  | Stream Flows |  |  |  | Mixing Information |  |  |  | Effluent Information |  |  |  |
|---|--|--------------|--|--|--|--------------------|--|--|--|----------------------|--|--|--|
| Mean Hardness (as CaCO <sub>3</sub> ) = |  | 172 mg/L     |  |  |  | 0.48 MGD           |  |  |  | 100 %                |  |  |  |
| 90% Temperature (Annual) =              |  | 21.3 deg C   |  |  |  | 0.51 MGD           |  |  |  | 100 %                |  |  |  |
| 90% Temperature (Wet season) =          |  | 21.3 deg C   |  |  |  | 0.56 MGD           |  |  |  | 100 %                |  |  |  |
| 90% Maximum pH =                        |  | 7.8 SU       |  |  |  | 0.72 MGD           |  |  |  | 100 %                |  |  |  |
| 10% Maximum pH =                        |  | 7.8 SU       |  |  |  | 0.83 MGD           |  |  |  | 100 %                |  |  |  |
| Tier Designation (1 or 2) =             |  | 2            |  |  |  | 0.63 MGD           |  |  |  | 0.15 MGD             |  |  |  |
| Public Water Supply (PWS) Y/N? =        |  | Y            |  |  |  | 1.41 MGD           |  |  |  | -                    |  |  |  |
| Trout Present Y/N? =                    |  | N            |  |  |  | 1.41 MGD           |  |  |  | -                    |  |  |  |
| Early Life Stages Present Y/N? =        |  | Y            |  |  |  | -                  |  |  |  | -                    |  |  |  |

| Parameter (ug/l unless noted)       | Background Conc. | Water Quality Criteria |          |          |         | Wasteload Allocations |         |          |         | Antidegradation Baseline |          |          |         | Antidegradation Allocations |         |          |         | Most Limiting Allocations |  |  |  |
|-------------------------------------|------------------|------------------------|----------|----------|---------|-----------------------|---------|----------|---------|--------------------------|----------|----------|---------|-----------------------------|---------|----------|---------|---------------------------|--|--|--|
|                                     |                  | Acute                  | Chronic  | HH (PWS) | HH      | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic  | HH (PWS) | HH      | Acute                       | Chronic | HH (PWS) | HH      |                           |  |  |  |
| Aceanaphthene                       | 0                | --                     | --       | 1.2E+03  | 2.7E+03 | --                    | --      | 6.2E+03  | 1.4E+04 | --                       | --       | 1.2E+02  | 2.7E+02 | --                          | --      | 6.2E+02  | 1.4E+03 |                           |  |  |  |
| Acrolein                            | 0                | --                     | --       | 3.2E+02  | 7.8E+02 | --                    | --      | 1.7E+03  | 4.1E+03 | --                       | --       | 3.2E+01  | 7.8E+01 | --                          | --      | 1.7E+02  | 4.1E+02 |                           |  |  |  |
| Acrylonitrile <sup>c</sup>          | 0                | --                     | --       | 5.9E-01  | 6.8E+00 | --                    | --      | 6.1E+00  | 6.9E+01 | --                       | --       | 5.9E-02  | 6.6E-01 | --                          | --      | 6.1E-01  | 6.9E+00 |                           |  |  |  |
| Aldrin <sup>c</sup>                 | 0                | 3.0E+00                | --       | 1.3E-03  | 1.4E-03 | 1.3E+01               | --      | 1.4E-02  | 1.5E-02 | 7.5E-01                  | --       | 1.3E-04  | 1.4E-04 | 3.2E+00                     | --      | 3.2E+00  | 1.4E-03 |                           |  |  |  |
| Ammonia-N (mg/l) (Yearly)           | 0                | 1.01E+01               | 1.87E+00 | --       | --      | 4.3E+01               | 8.8E+00 | --       | --      | 2.53E+00                 | 4.67E-01 | --       | --      | 1.1E+01                     | 2.2E+00 | --       | --      |                           |  |  |  |
| Ammonia-N (mg/l) (High Flow)        | 0                | 1.07E+01               | 2.08E+00 | --       | --      | 6.2E+01               | 1.4E-01 | --       | --      | 2.67E+00                 | 5.21E-01 | --       | --      | 1.6E+01                     | 3.4E+00 | --       | --      |                           |  |  |  |
| Anthracene                          | 0                | --                     | --       | 9.6E-03  | 1.1E+05 | --                    | --      | 5.0E+04  | 5.7E+05 | --                       | --       | 9.6E+02  | 1.1E+04 | --                          | --      | 5.0E+03  | 5.7E+04 |                           |  |  |  |
| Antimony                            | 1.25             | --                     | --       | 1.4E+01  | 4.3E+03 | --                    | --      | 6.8E+01  | 2.2E+04 | --                       | --       | 2.5E+00  | 4.3E+02 | --                          | --      | 7.9E+00  | 2.2E+03 |                           |  |  |  |
| Arsenic                             | 0.45             | 3.4E+02                | 1.5E+02  | 1.0E+01  | --      | 1.4E+03               | 6.6E+02 | 5.0E+01  | --      | 8.5E+01                  | 3.8E+01  | 1.4E+00  | --      | 3.6E+02                     | 1.6E+02 | 5.4E+00  | --      |                           |  |  |  |
| Barium                              | 52               | --                     | --       | 2.0E+03  | --      | --                    | --      | 1.0E+04  | --      | --                       | --       | 2.5E+02  | --      | --                          | --      | 1.1E+03  | --      |                           |  |  |  |
| Benzene <sup>c</sup>                | 0                | --                     | --       | 1.2E+01  | 7.1E+02 | --                    | --      | 1.2E+02  | 7.4E+03 | --                       | --       | 1.2E+00  | 7.1E+01 | --                          | --      | 1.2E+01  | 7.4E+02 |                           |  |  |  |
| Benzidine <sup>c</sup>              | 0                | --                     | --       | 1.2E-03  | 5.4E-03 | --                    | --      | 1.2E-02  | 5.6E-02 | --                       | --       | 1.2E-04  | 5.4E-04 | --                          | --      | 1.2E-03  | 5.6E-03 |                           |  |  |  |
| Benzo (a) anthracene <sup>c</sup>   | 0                | --                     | --       | 4.4E-02  | 4.9E-01 | --                    | --      | 4.6E-01  | 5.1E+00 | --                       | --       | 4.4E-03  | 4.9E-02 | --                          | --      | 4.6E-02  | 5.1E-01 |                           |  |  |  |
| Benzo (b) fluoranthene <sup>c</sup> | 0                | --                     | --       | 4.4E-02  | 4.9E-01 | --                    | --      | 4.6E-01  | 5.1E+00 | --                       | --       | 4.4E-03  | 4.9E-02 | --                          | --      | 4.6E-02  | 5.1E-01 |                           |  |  |  |
| Benzo (k) fluoranthene <sup>c</sup> | 0                | --                     | --       | 4.4E-02  | 4.9E-01 | --                    | --      | 4.6E-01  | 5.1E+00 | --                       | --       | 4.4E-03  | 4.9E-02 | --                          | --      | 4.6E-02  | 5.1E-01 |                           |  |  |  |
| Benzo (a) pyrene <sup>c</sup>       | 0                | --                     | --       | 4.4E-02  | 4.9E-01 | --                    | --      | 4.6E-01  | 5.1E+00 | --                       | --       | 4.4E-03  | 4.9E-02 | --                          | --      | 4.6E-02  | 5.1E-01 |                           |  |  |  |
| Bis2-Chloroethyl Ether              | 0                | --                     | --       | 3.1E-01  | 1.4E+01 | --                    | --      | 1.8E+00  | 7.3E+01 | --                       | --       | 3.1E-02  | 1.4E+00 | --                          | --      | 1.6E-01  | 7.3E+00 |                           |  |  |  |
| Bis2-Chloroisopropyl Ether          | 0                | --                     | --       | 1.4E+03  | 1.7E+05 | --                    | --      | 7.3E+03  | 8.8E+05 | --                       | --       | 1.4E+02  | 1.7E+04 | --                          | --      | 7.3E+02  | 8.8E+04 |                           |  |  |  |
| Bromform <sup>c</sup>               | 0                | --                     | --       | 4.4E+01  | 3.6E+03 | --                    | --      | 4.6E+02  | 3.7E+04 | --                       | --       | 4.4E+00  | 3.6E+02 | --                          | --      | 4.6E+01  | 3.7E+03 |                           |  |  |  |
| Butylbenzylphthalate                | 0                | --                     | --       | 3.0E+03  | 5.2E+03 | --                    | --      | 1.6E+04  | 2.7E+04 | --                       | --       | 3.0E+02  | 5.2E+02 | --                          | --      | 1.6E+03  | 2.7E+03 |                           |  |  |  |
| Cadmium                             | 0                | 6.9E+00                | 1.7E+00  | 5.0E+00  | --      | 2.9E+01               | 7.4E+00 | 2.6E+01  | --      | 1.7E+00                  | 4.2E+01  | 5.0E+01  | --      | 7.3E+00                     | 1.9E+00 | 2.6E+00  | --      |                           |  |  |  |
| Carbon Tetrachloride <sup>c</sup>   | 0                | --                     | --       | 2.5E+00  | 4.4E+01 | --                    | --      | 2.6E+01  | 4.6E+02 | --                       | --       | 2.5E+01  | 4.4E+00 | --                          | --      | 2.6E+00  | 4.6E+01 |                           |  |  |  |
| Chlordane <sup>c</sup>              | 0                | 2.4E+00                | 4.3E+03  | 2.1E-02  | 2.2E-02 | 1.0E+01               | 1.9E-02 | 2.2E-01  | 2.3E-01 | 6.0E-01                  | 1.1E-03  | 2.1E-03  | 2.2E-03 | 2.5E+00                     | 4.7E+03 | 2.2E+02  | 2.3E+02 |                           |  |  |  |
| Chloride                            | 0                | 8.6E+05                | 2.3E+05  | 2.5E+05  | --      | 3.6E+06               | 1.0E+06 | 1.3E+06  | --      | 2.2E+05                  | 5.8E+04  | 2.5E+04  | --      | 9.0E+05                     | 2.5E+05 | 1.3E+05  | --      |                           |  |  |  |
| TRC                                 | 0                | 1.9E+01                | 1.1E+01  | --       | --      | 8.0E+01               | 4.8E+01 | --       | --      | 4.8E+00                  | 2.8E+00  | --       | --      | 2.0E+01                     | 1.2E+01 | 1.2E+01  | --      |                           |  |  |  |
| Chlorobenzene                       | 0                | --                     | --       | 6.8E+02  | 2.1E+04 | --                    | --      | 3.5E+03  | 1.1E+05 | --                       | --       | 6.8E+01  | 2.1E+03 | --                          | --      | 3.5E+02  | 1.1E+04 |                           |  |  |  |

| Parameter<br>(ug/l unless noted)                     | Background<br>Conc. | Water Quality Criteria |         |          |          | Wasteload Allocations |         |          |         | Antidegradation Baseline |         |          |         | Antidegradation Allocations |         |          |         | Most Limiting Allocations |         |         |
|--|---------------------|------------------------|---------|----------|----------|-----------------------|---------|----------|---------|--------------------------|---------|----------|---------|-----------------------------|---------|----------|---------|---------------------------|---------|---------|
|  |                     | Acute                  | Chronic | HH (PWS) | HH       | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic | HH (PWS) | HH      | Acute                       | Chronic | HH (PWS) | HH      | Acute                     | Chronic |         |
| Chlorobromomethane <sup>c</sup>                      | 0                   | -                      | -       | 4.1E+00  | 3.4E+02  | -                     | -       | 4.3E+01  | 3.5E+03 | -                        | -       | 4.1E+01  | 3.4E+01 | -                           | -       | 4.3E+00  | 3.5E+02 | -                         | -       |         |
| Chloroform <sup>c</sup>                              | 0                   | -                      | -       | 3.5E+02  | 2.9E+04  | -                     | -       | 3.6E+03  | 3.0E+05 | -                        | -       | 3.5E+01  | 2.9E+03 | -                           | -       | 3.6E+02  | 3.0E+04 | -                         | -       |         |
| 2-Chloronaphthalene                                  | 0                   | -                      | -       | 1.7E+03  | 4.3E+03  | -                     | -       | 8.8E+03  | 2.2E+04 | -                        | -       | 1.7E+02  | 4.3E+02 | -                           | -       | 8.8E+02  | 2.2E+03 | -                         | -       |         |
| 2-Chlorophenol                                       | 0                   | -                      | -       | 1.2E+02  | 4.0E+02  | -                     | -       | 6.2E+02  | 2.1E+03 | -                        | -       | 1.2E+01  | 4.0E+01 | -                           | -       | 6.2E+01  | 2.1E+02 | -                         | -       |         |
| Chloropyridine                                       | 0                   | 8.3E-02                | 4.1E-02 | -        | -        | 3.5E-01               | 1.8E-01 | -        | -       | 2.1E-02                  | 1.0E-02 | -        | -       | 8.7E-02                     | 4.5E-02 | -        | -       | 8.7E-02                   | 4.5E-02 | -       |
| Chromium III   | 0                   | 8.6E-02                | 1.1E-02 | -        | -        | 3.6E+03               | 4.9E+02 | -        | -       | 2.2E+02                  | 2.8E+01 | -        | -       | 9.0E+02                     | 1.2E+02 | -        | -       | 9.0E+02                   | 1.2E+02 | -       |
| Chromium VI  | 0                   | 1.6E+01                | 1.1E+01 | -        | -        | 6.7E+01               | 4.8E+01 | -        | -       | 4.0E+00                  | 2.8E+00 | -        | -       | 1.0E+01                     | 1.2E+01 | -        | -       | 1.7E+01                   | 1.2E+01 | -       |
| Chromium, Total                                      | 0.13                | -                      | -       | 1.0E+02  | -        | -                     | -       | 5.2E+02  | -       | -                        | -       | 1.0E+01  | -       | -                           | -       | 5.2E+01  | -       | -                         | -       |         |
| Chrysene <sup>c</sup>                                | 0                   | -                      | -       | 4.4E-02  | 4.9E-01  | -                     | -       | 4.6E-01  | 5.1E+00 | -                        | -       | 4.4E-03  | 4.9E-02 | -                           | -       | 4.6E-02  | 5.1E-01 | -                         | -       |         |
| Copper   | 0.22                | 2.2E+01                | 1.4E+01 | 1.3E+03  | -        | 9.0E+01               | 6.0E+01 | 6.8E+03  | -       | 5.6E+00                  | 3.6E+00 | 1.3E+02  | -       | 2.3E+01                     | 1.5E+01 | -        | -       | 6.8E+02                   | 5.1E-01 | -       |
| Cyanide  | 0                   | 2.2E+01                | 5.2E+00 | 7.0E+02  | 2.2E+05  | 9.2E+01               | 2.3E+01 | 3.6E+03  | 1.1E+06 | 5.5E+00                  | 1.3E+00 | 7.0E+01  | 2.2E+04 | 2.3E+01                     | 5.7E+00 | 3.6E+02  | 2.3E+01 | 5.7E+00                   | 3.6E+02 | 1.1E-05 |
| DDD <sup>c</sup>                                     | 0                   | -                      | -       | 8.3E-03  | 8.4E-03  | -                     | -       | 8.6E-02  | 8.7E-02 | -                        | -       | 8.3E-04  | 8.4E-04 | -                           | -       | 8.6E-03  | 8.7E-03 | -                         | -       |         |
| DDE <sup>c</sup>                                     | 0                   | -                      | -       | 5.9E-03  | 5.9E-03  | -                     | -       | 6.1E-02  | 6.1E-02 | -                        | -       | 5.9E-04  | 5.9E-04 | -                           | -       | 6.1E-03  | 6.1E-03 | -                         | -       |         |
| DDT <sup>c</sup>                                     | 0                   | 1.1E+00                | 1.0E-03 | 5.9E-03  | 5.9E-03  | 4.6E+00               | 4.4E-03 | 6.1E-02  | 2.8E-01 | 2.5E-04                  | 5.9E-04 | 1.2E+00  | 1.1E-03 | 6.1E-03                     | 1.2E+00 | 1.1E-03  | 6.1E-03 | 1.1E-03                   | 6.1E-03 | -       |
| Demeton  | 0                   | -                      | 1.0E-01 | -        | -        | -                     | -       | 4.4E-01  | -       | -                        | -       | 2.5E-02  | -       | -                           | -       | 1.1E-01  | -       | -                         | -       |         |
| Dibenz(a)anthracene <sup>c</sup>                     | 0                   | -                      | -       | 4.4E-02  | 4.9E-01  | -                     | -       | 4.6E-01  | 5.1E+00 | -                        | -       | 4.4E-03  | 4.9E-02 | -                           | -       | 4.6E-02  | 5.1E-01 | -                         | -       |         |
| Dimethyl phthalate                                   | 0                   | -                      | -       | 2.7E+03  | 1.2E+04  | -                     | -       | 1.4E+04  | 6.2E+04 | -                        | -       | 2.7E+02  | 1.2E+03 | -                           | -       | 1.4E+03  | 6.2E+03 | -                         | -       |         |
| Dichloromethane<br>(Methylene Chloride) <sup>c</sup> | 0                   | -                      | -       | 4.7E+01  | 1.6E+04  | -                     | -       | 4.9E+02  | 1.7E+05 | -                        | -       | 4.7E+00  | 1.6E+03 | -                           | -       | 4.9E+01  | 1.7E+04 | -                         | -       |         |
| 1,2-Dichlorobenzene                                  | 0                   | -                      | -       | 2.7E+03  | 1.7E+04  | -                     | -       | 1.4E+04  | 8.8E+04 | -                        | -       | 2.7E+02  | 1.7E+03 | -                           | -       | 1.4E+03  | 8.8E+03 | -                         | -       |         |
| 1,3-Dichlorobenzene                                  | 0                   | -                      | -       | 4.0E+02  | 2.6E+03  | -                     | -       | 2.1E+03  | 1.4E+04 | -                        | -       | 4.0E+01  | 2.6E+02 | -                           | -       | 2.1E+02  | 1.4E+03 | -                         | -       |         |
| 1,4-Dichlorobenzene                                  | 0                   | -                      | -       | 4.0E+02  | 2.6E+03  | -                     | -       | 2.1E+03  | 1.4E+04 | -                        | -       | 4.0E+01  | 2.6E+02 | -                           | -       | 2.1E+02  | 1.4E+03 | -                         | -       |         |
| 3,3-Dichlorobenzidine <sup>c</sup>                   | 0                   | -                      | -       | 4.0E-01  | 7.7E-01  | -                     | -       | 4.2E+00  | 8.0E+00 | -                        | -       | 4.0E-02  | 7.7E-02 | -                           | -       | 4.2E-01  | 8.0E-01 | -                         | -       |         |
| Dichlorobromomethane <sup>c</sup>                    | 0                   | -                      | -       | 5.6E+00  | 4.6E+02  | -                     | -       | 5.8E+01  | 4.8E+03 | -                        | -       | 5.6E-01  | 4.6E+01 | -                           | -       | 5.8E-00  | 4.8E+02 | -                         | -       |         |
| 1,2-Dichloroethane <sup>c</sup>                      | 0                   | -                      | -       | 3.8E+00  | 9.3E+02  | -                     | -       | 4.0E+01  | 1.0E+04 | -                        | -       | 3.8E-01  | 9.9E+01 | -                           | -       | 4.0E+00  | 1.0E+03 | -                         | -       |         |
| 1,1-Dichloroethylene                                 | 0                   | -                      | -       | 3.1E+02  | 1.7E+04  | -                     | -       | 1.6E+03  | 8.8E+04 | -                        | -       | 3.1E-01  | 1.7E+03 | -                           | -       | 1.6E+02  | 8.8E+03 | -                         | -       |         |
| 1,2-trans-dichloroethylene                           | 0                   | -                      | -       | 7.0E+02  | 1.4E+05  | -                     | -       | 3.6E+03  | 7.3E+05 | -                        | -       | 7.0E-01  | 1.4E+04 | -                           | -       | 3.6E+02  | 7.3E+04 | -                         | -       |         |
| 2,4-Dichlorophenol                                   | 0                   | -                      | -       | 9.3E+01  | 7.9E+02  | -                     | -       | 4.8E+02  | 4.1E+03 | -                        | -       | 9.3E+00  | 7.9E+01 | -                           | -       | 4.8E+01  | 4.1E+02 | -                         | -       |         |
| 2,4-Dichlorophenoxyacetic acid (2,4-D)               | 0                   | -                      | -       | 1.0E+02  | -        | -                     | -       | 5.2E+02  | -       | -                        | -       | 1.0E+01  | -       | -                           | -       | 5.2E+01  | -       | -                         | -       |         |
| 1,2-Dichloropropane <sup>c</sup>                     | 0                   | -                      | -       | 5.2E+00  | 3.9E+02  | -                     | -       | 5.4E+01  | 4.1E+03 | -                        | -       | 5.2E-01  | 3.9E+01 | -                           | -       | 5.4E+00  | 4.1E+02 | -                         | -       |         |
| 1,3-Dichloropropene                                  | 0                   | -                      | -       | 1.0E+01  | 1.7E+03  | -                     | -       | 5.2E+01  | 8.8E+03 | -                        | -       | 1.0E+00  | 1.7E+02 | -                           | -       | 5.2E+00  | 8.8E+02 | -                         | -       |         |
| Dieidrin <sup>c</sup>                                | 0                   | 5.6E-02                | 1.4E-03 | 1.4E-03  | 1.0E+00  | 2.5E-01               | 1.5E-02 | 6.0E-02  | 1.4E-02 | 1.4E-04                  | 2.5E-01 | 6.2E-02  | 1.5E-03 | 2.5E-01                     | 6.2E-02 | 1.5E-03  | 1.5E-03 | 1.5E-03                   | 1.5E-03 |         |
| Diethyl Phthalate                                    | 0                   | -                      | -       | 2.3E+04  | 1.2E+05  | -                     | -       | 1.2E+05  | 6.2E+05 | -                        | -       | 2.3E+03  | 1.2E+04 | -                           | -       | 1.2E+04  | 6.2E+04 | -                         | -       |         |
| Di-2-Ethylhexyl Phthalate <sup>c</sup>               | 0                   | -                      | -       | 1.8E+01  | 5.9E+01  | -                     | -       | 1.9E+02  | 6.1E+02 | -                        | -       | 1.8E+00  | 5.9E+00 | -                           | -       | 1.9E+01  | 6.1E+01 | -                         | -       |         |
| 2,4-Dimethylphenol                                   | 0                   | -                      | -       | 5.4E+02  | 2.3E+03  | -                     | -       | 2.8E+03  | 1.2E+04 | -                        | -       | 5.4E+01  | 2.3E+02 | -                           | -       | 2.8E+02  | 1.2E+03 | -                         | -       |         |
| Dimethyl Phthalate                                   | 0                   | -                      | -       | 3.1E+05  | 2.9E+06  | -                     | -       | 1.6E+06  | 1.5E+07 | -                        | -       | 3.1E+04  | 2.9E+05 | -                           | -       | 1.6E+05  | 1.5E+06 | -                         | -       |         |
| Di-n-Butyl Phthalate                                 | 0                   | -                      | -       | 2.7E+03  | 1.2E+04  | -                     | -       | 1.4E+04  | 6.2E+04 | -                        | -       | 2.7E+02  | 1.2E+03 | -                           | -       | 1.4E+03  | 6.2E+03 | -                         | -       |         |
| 2,4-Dinitrophenol                                    | 0                   | -                      | -       | 7.0E+01  | 1.4E+04  | -                     | -       | 3.6E+02  | 7.3E+04 | -                        | -       | 7.0E+00  | 1.4E+03 | -                           | -       | 3.6E+01  | 7.3E+03 | -                         | -       |         |
| 2-Methyl-4,6-Dinitrophenol                           | 0                   | -                      | -       | 1.3E+01  | 7.65E-02 | -                     | -       | 7.0E+01  | 4.0E+03 | -                        | -       | 1.3E+00  | 7.7E+01 | -                           | -       | 7.0E+00  | 4.0E+02 | -                         | -       |         |
| 2,4-Dinitrotoluene <sup>c</sup>                      | 0                   | -                      | -       | 1.1E+00  | 9.1E+01  | -                     | -       | 1.1E+01  | 9.5E+02 | -                        | -       | 1.1E-01  | 9.1E+00 | -                           | -       | 1.1E+00  | 9.5E+01 | -                         | -       |         |
| Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)   | 0                   | -                      | -       | 1.2E-06  | 1.2E-06  | -                     | -       | 1.2E-05  | 1.2E-05 | -                        | -       | 1.2E-07  | 1.2E-07 | -                           | -       | 1.2E-06  | 1.2E-06 | -                         | -       |         |
| 1,2-Diphenylhydrazine <sup>c</sup>                   | 0                   | -                      | -       | 4.0E-01  | 5.4E+00  | -                     | -       | 4.2E+00  | 5.6E+01 | -                        | -       | 4.0E-02  | 5.4E-01 | -                           | -       | 4.2E-01  | 5.6E+00 | -                         | -       |         |
| Alpha-Endosulfan                                     | 0                   | 2.2E-01                | 5.6E-02 | 1.1E+02  | 2.4E+02  | 9.2E-01               | 2.5E-01 | 5.7E+02  | 1.2E+03 | -                        | -       | 1.4E-02  | 1.2E+01 | 2.4E+01                     | 2.3E-01 | 6.2E-02  | 5.7E+01 | 1.2E+02                   | 2.3E-01 | 5.7E+01 |
| Beta-Endosulfan                                      | 0                   | 2.2E-01                | 5.6E-02 | 1.1E+02  | 2.4E+02  | 9.2E-01               | 2.5E-01 | 5.7E+02  | 1.2E+03 | -                        | -       | 1.4E-02  | 1.2E+01 | 2.4E+01                     | 2.3E-01 | 6.2E-02  | 5.7E+01 | 1.2E+02                   | 2.3E-01 | 5.7E+01 |
| Endosulfan Sulfate                                   | 0                   | -                      | -       | 1.1E+02  | 2.4E+02  | -                     | -       | 5.7E+02  | 1.2E+03 | -                        | -       | 1.1E+01  | 2.4E+01 | -                           | -       | 5.7E+01  | 1.2E+02 | -                         | -       |         |
| Endrin   | 0                   | 8.6E-02                | 3.6E-02 | 7.6E-01  | 8.1E-01  | 3.6E-01               | 4.0E+00 | 4.2E+00  | 2.2E-02 | 9.0E-03                  | 7.6E-02 | 8.1E-02  | 9.0E-02 | 4.0E-01                     | 4.2E-01 | 7.0E+00  | 4.0E+02 | 9.0E-02                   | 4.0E-01 |         |
| Endrin Aldehyde                                      | 0                   | -                      | -       | 7.6E-01  | 8.1E-01  | -                     | -       | 4.0E+00  | 4.2E+00 | -                        | -       | 7.6E-02  | 8.1E-02 | -                           | -       | 4.0E-01  | 4.2E-01 | -                         | -       |         |

| Parameter<br>(ug/l unless noted)       | Background | Conc.   | Water Quality Criteria |         |          | Wasteload Allocations |         |         | Antidegradation Baseline |         |         | Antidegradation Allocations |          |         | Most Limiting Allocations |         |          |         |
|--|------------|---------|------------------------|---------|----------|-----------------------|---------|---------|--------------------------|---------|---------|-----------------------------|----------|---------|---------------------------|---------|----------|---------|
|  |            |         | Acute                  | Chronic | HH (PWS) | HH                    | Acute   | Chronic | HH (PWS)                 | HH      | Acute   | Chronic                     | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) | HH      |
| Ethylbenzene                           | 0          | -       | -                      | 3.1E+03 | 2.9E+04  | -                     | -       | 1.6E+04 | 1.5E+05                  | --      | -       | 3.1E+02                     | 2.9E+03  | --      | -                         | 1.6E+03 | 1.5E+04  |         |
| Fluoranthene                           | 0          | -       | -                      | 3.0E+02 | 3.7E+02  | -                     | -       | 1.6E+03 | 1.9E+03                  | --      | -       | 3.0E+01                     | 3.7E+01  | --      | -                         | 1.6E+02 | 1.9E+02  |         |
| Fluorene                               | 0          | -       | -                      | 1.3E+03 | 1.4E+04  | -                     | -       | 6.8E+03 | 7.3E+04                  | --      | -       | 1.3E+02                     | 1.4E+03  | --      | -                         | 6.8E+02 | 7.3E+03  |         |
| Foaming Agents                         | 0          | -       | -                      | 5.0E+02 | -        | -                     | -       | 2.6E+03 | -                        | -       | -       | 5.0E+01                     | -        | --      | -                         | 2.6E+02 | -        |         |
| Guthion                                | 0          | -       | 1.0E-02                | -       | -        | 4.4E-02               | -       | -       | 2.5E-03                  | -       | -       | -                           | 1.1E-02  | -       | --                        | -       | 1.1E-02  | 2.6E+02 |
| Hepachlor C                            | 0          | 5.2E-01 | 3.8E-03                | 2.1E-03 | 1.1E-03  | 2.2E+00               | 1.7E-02 | 1.0E-02 | 2.2E-02                  | 1.3E-01 | 9.5E-04 | 2.1E-04                     | 5.5E-01  | 4.2E-03 | 2.2E-03                   | 4.2E-03 | 4.2E-03  |         |
| Hepachlor Epoxide <sup>f</sup>         | 0          | 5.2E-01 | 3.8E-03                | 1.0E-03 | 1.1E-03  | 2.2E+00               | 1.7E-02 | 1.1E-02 | 1.3E-01                  | 9.5E-04 | 1.0E-04 | 1.1E-04                     | 5.5E-01  | 4.2E-03 | 1.0E-03                   | 5.5E-01 | 4.2E-03  |         |
| Hexachlorobenzene <sup>g</sup>         | 0          | -       | -                      | 7.5E-03 | 7.7E-03  | -                     | -       | 7.8E-02 | 8.0E-02                  | -       | -       | 7.5E-04                     | 7.7E-04  | -       | -                         | 7.8E-03 | 8.0E-03  |         |
| Hexachlorobutadiene <sup>f</sup>       | 0          | -       | -                      | 4.4E+00 | 5.0E+02  | -                     | -       | 4.6E+01 | 5.2E+03                  | -       | -       | 4.4E-01                     | 5.0E+01  | -       | -                         | 4.6E+00 | 5.2E+02  |         |
| Hexachlorocyclohexane                  | 0          | -       | -                      | 3.9E-02 | 1.3E-01  | -                     | -       | 4.1E-01 | 1.4E+00                  | -       | -       | 3.9E-03                     | 1.3E-02  | -       | -                         | 4.1E-02 | 1.4E-01  |         |
| Alpha-BHC <sup>c</sup>                 | 0          | -       | -                      | 1.4E-01 | 4.6E-01  | -                     | -       | 1.5E+00 | 4.8E+00                  | -       | -       | 1.4E-02                     | 4.6E+02  | -       | -                         | 1.5E-01 | 4.8E-01  |         |
| Beta-BHC <sup>c</sup>                  | 0          | -       | -                      | 1.9E-01 | 6.3E-01  | 4.0E+00               | -       | 2.0E+00 | 6.6E+00                  | 2.4E+01 | -       | 1.9E-02                     | 6.3E-02  | 1.0E+00 | -                         | 2.0E-01 | 6.6E-01  |         |
| Hexachlorocyclopentadiene              | 0          | -       | -                      | 2.4E+02 | 1.7E+04  | -                     | -       | 1.2E+03 | 8.8E+04                  | -       | -       | 2.4E+01                     | 1.7E+03  | -       | -                         | 1.2E+02 | 8.8E+03  |         |
| Hexachlorocyclohexane                  | 0          | -       | -                      | 1.9E+01 | 8.9E+01  | -                     | -       | 2.0E+02 | 9.3E+02                  | -       | -       | 1.9E+00                     | 8.9E+00  | -       | -                         | 2.0E+01 | 9.3E+01  |         |
| Gamma-BHC <sup>c</sup> (Lindane)       | 0          | 9.5E-01 | -                      | 2.0E+00 | -        | -                     | 8.8E+00 | -       | -                        | 5.0E-01 | -       | -                           | -        | 2.2E+00 | -                         | -       | 2.2E+00  |         |
| Indeno (1,2,3-cd) Pyrene <sup>c</sup>  | 0          | -       | -                      | 4.4E-02 | 4.9E-01  | -                     | -       | 4.6E-01 | 5.1E+00                  | -       | -       | 4.4E-03                     | 4.9E-02  | -       | -                         | 4.6E-02 | 5.1E+01  |         |
| Iron                                   | 0          | -       | -                      | 3.0E+02 | -        | -                     | -       | 1.6E+03 | -                        | -       | -       | 3.0E+01                     | -        | -       | -                         | 1.6E+02 | -        |         |
| Isophorone <sup>c</sup>                | 0          | -       | -                      | 3.6E+02 | 2.6E+04  | -                     | -       | 3.7E+03 | 2.7E+05                  | -       | -       | 3.6E+01                     | 2.6E+03  | -       | -                         | 3.7E+02 | 2.7E+04  |         |
| Kepone                                 | 0          | -       | 0.0E+00                | -       | -        | 0.0E+00               | -       | -       | 0.0E+00                  | -       | -       | -                           | 0.0E+00  | -       | -                         | 0.0E+00 | -        |         |
| Lead                                   | 0          | 2.3E+02 | 2.6E+01                | 1.5E+01 | -        | 9.5E+02               | 1.1E+02 | 7.8E+01 | -                        | 5.6E+01 | 6.4E+00 | 1.5E+00                     | -        | 2.4E+02 | 2.8E+01                   | -       | 2.4E+02  | 2.8E+00 |
| Malathion                              | 0          | -       | 1.0E-01                | -       | -        | 4.4E-01               | -       | -       | 2.5E-02                  | -       | -       | 3.0E+01                     | -        | -       | -                         | 1.1E-01 | -        |         |
| Manganese                              | 20         | -       | -                      | 5.0E+01 | -        | -                     | -       | 1.8E+02 | -                        | -       | -       | 2.3E+01                     | -        | -       | -                         | 3.6E+01 | -        |         |
| Mercury                                | 0          | 1.4E+00 | 7.7E-01                | 5.0E-02 | 5.1E-02  | 5.9E+00               | 3.4E+00 | 2.6E-01 | 2.7E-01                  | 3.5E-01 | 1.9E-01 | 5.0E-03                     | 5.1E-03  | 1.5E+00 | 8.5E-01                   | 8.5E-01 | 2.7E-02  |         |
| Methyl Bromide                         | 0          | -       | -                      | 4.8E+01 | 4.0E+03  | -                     | -       | 2.5E+02 | 2.1E+04                  | -       | -       | 4.8E+00                     | 4.0E+02  | -       | -                         | 2.5E+01 | 2.1E+03  |         |
| Methoxychlor                           | 0          | -       | 3.0E-02                | 1.0E+02 | -        | -                     | 1.3E-01 | 5.2E+02 | -                        | -       | 7.5E-03 | 1.0E+01                     | -        | -       | 3.3E-02                   | 5.2E+01 | -        |         |
| Mirex                                  | 0          | -       | 0.0E+00                | -       | -        | 0.0E+00               | -       | -       | 0.0E+00                  | -       | -       | -                           | 0.0E+00  | -       | -                         | 0.0E+00 | -        |         |
| Monochlorobenzene                      | 0          | -       | -                      | 6.8E+02 | 2.1E+04  | -                     | -       | 3.5E+03 | 1.1E+05                  | -       | -       | 6.8E+01                     | 2.1E+03  | -       | -                         | 3.5E+02 | 1.1E+04  |         |
| Nickel                                 | 0.38       | 2.8E+02 | 3.1E+01                | 6.1E+02 | 4.6E+03  | 1.2E+03               | 1.4E+02 | 3.2E+03 | 2.4E+04                  | 7.0E+01 | 8.1E+00 | 6.1E+01                     | 4.6E+02  | 2.9E+02 | 3.4E+01                   | 3.2E+02 | 2.4E+03  |         |
| Nitrate (as N)                         | 0          | -       | -                      | 1.0E+04 | -        | -                     | -       | 5.2E+04 | -                        | -       | -       | 1.0E+03                     | -        | -       | -                         | 5.2E+03 | -        |         |
| Nitrobenzene                           | 0          | -       | -                      | 1.7E+01 | 1.9E+03  | -                     | -       | 8.8E+01 | 9.9E+03                  | -       | -       | 1.7E+00                     | 1.9E+02  | -       | -                         | 8.8E+00 | 9.9E+02  |         |
| N-Nitrosodimethylamine <sup>g</sup>    | 0          | -       | -                      | 6.9E-03 | 8.1E+01  | -                     | -       | 7.2E-02 | 8.4E+02                  | -       | -       | 6.9E-04                     | 8.1E+00  | -       | -                         | 7.2E-03 | 8.4E+01  |         |
| N-Nitrosodiphenylamine <sup>g</sup>    | 0          | -       | -                      | 5.0E+01 | 1.6E+02  | -                     | -       | 5.2E+02 | 1.7E+03                  | -       | -       | 5.0E+00                     | 1.6E+01  | -       | -                         | 5.2E+01 | 1.7E+02  |         |
| N-Nitrosodi-n-propylamine <sup>g</sup> | 0          | -       | -                      | 5.0E-02 | 1.4E+01  | -                     | -       | 5.2E-01 | 1.5E+02                  | -       | -       | 5.0E-03                     | 1.4E+00  | -       | -                         | 5.2E-02 | 1.5E+01  |         |
| Parathion                              | 0          | 6.5E-02 | 1.3E-02                | -       | -        | 2.7E-01               | 5.7E-02 | -       | -                        | 1.6E-02 | 3.3E-03 | -                           | -        | 6.8E-02 | 1.4E-02                   | -       | -        |         |
| PCB-1016                               | 0          | -       | 1.4E-02                | -       | -        | 6.2E-02               | -       | -       | 3.5E-03                  | -       | -       | -                           | 1.5E-02  | -       | -                         | 1.5E-02 | -        |         |
| PCB-1221                               | 0          | -       | 1.4E-02                | -       | -        | 6.2E-02               | -       | -       | 3.5E-03                  | -       | -       | -                           | 1.5E-02  | -       | -                         | 1.5E-02 | -        |         |
| PCB-1232                               | 0          | -       | 1.4E-02                | -       | -        | 6.2E-02               | -       | -       | 3.5E-03                  | -       | -       | -                           | 1.5E-02  | -       | -                         | 1.5E-02 | -        |         |
| PCB-1242                               | 0          | -       | 1.4E-02                | -       | -        | 6.2E-02               | -       | -       | 3.5E-03                  | -       | -       | -                           | 1.5E-02  | -       | -                         | 1.5E-02 | -        |         |
| PCB-1248                               | 0          | -       | 1.4E-02                | -       | -        | 6.2E-02               | -       | -       | 3.5E-03                  | -       | -       | -                           | 1.5E-02  | -       | -                         | 1.5E-02 | -        |         |
| PCB-1254                               | 0          | -       | 1.4E-02                | -       | -        | 6.2E-02               | -       | -       | 3.5E-03                  | -       | -       | -                           | 1.5E-02  | -       | -                         | 1.5E-02 | -        |         |
| PCB-1260                               | 0          | -       | 1.4E-02                | -       | -        | 6.2E-02               | -       | -       | 3.5E-03                  | -       | -       | -                           | 1.5E-02  | -       | -                         | 1.5E-02 | -        |         |
| PCB Total <sup>f</sup>                 | 0          | -       | 1.7E-03                | 1.7E-03 | -        | -                     | 1.8E-02 | 1.8E-02 | -                        | -       | 1.7E-04 | 1.7E-04                     | -        | -       | 1.8E-03                   | 1.8E-03 | -        |         |

| Parameter<br>(ug/l unless noted)                   | Background<br>Conc. | Water Quality Criteria |         |          |         | Wasteload Allocations |         |          |         | Antidegradation Baseline |         |          |         | Antidegradation Allocations |         |          |         | Most Limiting Allocations |         |          |         |
|--|---------------------|------------------------|---------|----------|---------|-----------------------|---------|----------|---------|--------------------------|---------|----------|---------|-----------------------------|---------|----------|---------|---------------------------|---------|----------|---------|
|  |                     | Acute                  | Chronic | HH (PWS) | HH      | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic | HH (PWS) | HH      | Acute                       | Chronic | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) | HH      |
| Pentachlorophenol c                                | 0                   | 8.0E+00                | 6.3E+00 | 2.8E+00  | 8.2E+01 | 3.4E+01               | 2.8E+01 | 2.9E+01  | 2.0E+00 | 2.0E+00                  | 2.1E+04 | 4.6E+05  | 8.4E+00 | 6.9E+00                     | 8.5E+01 | 8.4E+00  | 6.9E+00 | 2.9E+00                   | 8.5E+01 | 8.4E+00  | 2.9E+00 |
| Phenol   | 0                   | -                      | -       | 2.1E+04  | 4.6E+06 | --                    | --      | 1.1E+05  | 2.4E+07 | --                       | --      | 2.1E+03  | 4.6E+05 | --                          | --      | 1.1E+04  | 2.4E+06 | --                        | --      | 1.1E+04  | 2.4E+06 |
| Pyrene   | 0                   | -                      | -       | 9.6E+02  | 1.1E+04 | --                    | --      | 5.0E+03  | 5.7E+04 | --                       | --      | 9.6E+01  | 1.1E+03 | --                          | --      | 5.0E+02  | 5.7E+03 | --                        | --      | 5.0E+02  | 5.7E+03 |
| Radionuclides (PCN/except Beta/Photon)             | 0                   | -                      | -       | --       | --      | --                    | --      | --       | --      | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | --       | --      |
| Gross Alpha Activity                               | 0                   | -                      | -       | 1.5E+01  | 1.5E+01 | --                    | --      | 7.8E+01  | 7.8E+01 | --                       | --      | 1.5E+00  | 1.5E+00 | --                          | --      | 7.8E+00  | 7.8E+00 | --                        | --      | 7.8E+00  | 7.8E+00 |
| Beta and Photon Activity (mrem/yr)                 | 0                   | -                      | -       | 4.0E+00  | 4.0E+00 | --                    | --      | 2.1E+01  | 2.1E+01 | --                       | --      | 4.0E+01  | 4.0E+01 | --                          | --      | 2.1E+00  | 2.1E+00 | --                        | --      | 2.1E+00  | 2.1E+00 |
| Sodium-23  | 0                   | -                      | -       | 8.0E+00  | 8.0E+00 | --                    | --      | 4.2E+01  | 4.2E+01 | --                       | --      | 8.0E+01  | 8.0E+01 | --                          | --      | 4.2E+00  | 4.2E+00 | --                        | --      | 4.2E+00  | 4.2E+00 |
| Strontium-90                                       | 0                   | -                      | -       | 2.0E+04  | 2.0E+04 | --                    | --      | 1.0E+05  | 1.0E+05 | --                       | --      | 2.0E+03  | 2.0E+03 | --                          | --      | 1.0E+04  | 1.0E+04 | --                        | --      | 1.0E+04  | 1.0E+04 |
| Tritium  | 0                   | -                      | -       | 5.0E+00  | 1.1E+04 | 8.4E+01               | 2.2E+01 | 8.8E+02  | 5.7E+04 | 5.0E+00                  | 1.3E+00 | 1.7E+01  | 1.1E+03 | 2.1E+01                     | 5.5E+00 | 8.8E+01  | 2.1E+03 | 5.5E+00                   | 8.8E+01 | 5.7E+03  |         |
| Selenium   | 0                   | 8.2E+00                | --      | --       | 3.4E+01 | --                    | --      | --       | 2.0E+00 | --                       | --      | --       | 8.6E+00 | --                          | --      | --       | 8.6E+00 | --                        | --      | --       | --      |
| Silver   | 0                   | -                      | -       | 2.5E+05  | --      | --                    | --      | 1.3E+06  | --      | --                       | --      | 2.5E+04  | --      | --                          | --      | 1.3E+05  | --      | --                        | --      | 1.3E+05  | --      |
| Sulfate  | 0                   | -                      | -       | 1.7E+00  | 1.1E+02 | --                    | --      | 1.8E+01  | 1.1E+03 | --                       | --      | 1.7E+01  | 1.1E+01 | --                          | --      | 1.8E+00  | 1.1E+02 | --                        | --      | 1.8E+00  | 1.1E+02 |
| 1,1,2,2-Tetrachloroethane <sup>f</sup>             | 0                   | -                      | -       | 8.0E+00  | 8.9E+01 | --                    | --      | 8.3E+01  | 9.3E+02 | --                       | --      | 8.0E+01  | 8.9E+00 | --                          | --      | 8.3E+00  | 9.3E+01 | --                        | --      | 8.3E+00  | 9.3E+01 |
| Tetrachloroethylene <sup>f</sup>                   | 0                   | -                      | -       | 1.7E+00  | 6.3E+00 | --                    | --      | 8.8E+01  | 9.3E+01 | --                       | --      | 1.7E+01  | 6.3E+01 | --                          | --      | 8.8E+01  | 3.3E+00 | --                        | --      | 8.8E+01  | 3.3E+00 |
| Thallium   | 0                   | -                      | -       | 6.8E+03  | 2.0E+05 | --                    | --      | 3.5E+04  | 1.0E+06 | --                       | --      | 6.8E+02  | 2.0E+04 | --                          | --      | 3.5E+03  | 1.0E+05 | --                        | --      | 3.5E+03  | 1.0E+05 |
| Toluene  | 0                   | -                      | -       | 5.0E+05  | --      | --                    | --      | 2.6E+06  | --      | --                       | --      | 5.0E+04  | --      | --                          | --      | 2.6E+05  | --      | --                        | --      | 2.6E+05  | --      |
| Total dissolved solids                             | 0                   | 7.3E-01                | 2.0E-04 | 7.3E-03  | 7.5E-03 | 3.1E+00               | 8.8E-04 | 7.6E-02  | 7.8E-02 | 1.8E-01                  | 5.0E-05 | 7.3E-04  | 7.5E-04 | 7.7E-01                     | 2.2E+04 | 7.8E-03  | 7.7E-03 | 7.7E-01                   | 2.2E+04 | 7.8E-03  | 7.8E-03 |
| Toxaphene c  | 0                   | 4.6E+01                | 6.3E-02 | --       | --      | 1.9E+00               | 2.8E-01 | --       | --      | 1.2E+01                  | 1.6E-02 | --       | --      | 4.8E+01                     | 6.9E+02 | --       | --      | 4.8E+01                   | 6.9E+02 | --       | --      |
| Tributyltin  | 0                   | -                      | -       | 2.6E+02  | 9.4E+02 | --                    | --      | 1.4E+03  | 4.9E+03 | --                       | --      | 2.6E+01  | 9.4E+01 | --                          | --      | 1.4E+02  | 4.9E+02 | --                        | --      | 1.4E+02  | 4.9E+02 |
| 1,2,4-Trichlorobenzene                             | 0                   | -                      | -       | 6.0E+00  | 4.2E+02 | --                    | --      | 6.2E+01  | 4.4E+03 | --                       | --      | 6.0E+01  | 4.2E+01 | --                          | --      | 6.2E+00  | 4.4E+02 | --                        | --      | 6.2E+00  | 4.4E+02 |
| 1,1,2-Trichloroethane <sup>f</sup>                 | 0                   | -                      | -       | 2.7E+01  | 8.1E+02 | --                    | --      | 2.8E+02  | 8.4E+03 | --                       | --      | 2.7E+00  | 8.1E+01 | --                          | --      | 2.8E+01  | 8.4E+02 | --                        | --      | 2.8E+01  | 8.4E+02 |
| Trichloroethylene <sup>c</sup>                     | 0                   | -                      | -       | 2.1E+01  | 6.5E+01 | --                    | --      | 2.2E+02  | 6.8E+02 | --                       | --      | 2.1E+00  | 6.5E+00 | --                          | --      | 2.2E+01  | 6.8E+01 | --                        | --      | 2.2E+01  | 6.8E+01 |
| 2,4,6-Trichloropropene c                           | 0                   | -                      | -       | 5.0E+01  | --      | --                    | --      | 2.6E+02  | --      | --                       | --      | 5.0E+00  | --      | --                          | --      | 2.6E+01  | --      | --                        | --      | 2.6E+01  | --      |
| 2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex) | 0                   | -                      | -       | 2.3E+01  | 6.1E+01 | --                    | --      | 2.4E+00  | 6.3E+02 | --                       | --      | 2.3E+02  | 6.1E+00 | --                          | --      | 2.4E+01  | 6.3E+01 | --                        | --      | 2.4E+01  | 6.3E+01 |
| Vinyl Chloride <sup>f</sup>                        | 0                   | 1.8E+02                | 1.8E+02 | 9.1E+03  | 6.9E+04 | 7.5E+02               | 7.9E+02 | 4.7E+04  | 3.6E+05 | 4.7E+01                  | 4.7E+01 | 9.1E+02  | 6.9E+03 | 1.9E+02                     | 2.0E+02 | 4.7E+03  | 3.6E+04 | 1.9E+02                   | 2.0E+02 | 4.7E+03  | 3.6E+04 |
| Zinc   | 2.2                 | -                      | -       | -        | -       | -                     | -       | -        | -       | -                        | -       | -        | -       | -                           | -       | -        | -       | -                         | -       | -        |         |

## Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipal
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
- Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
- = (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

| Metal        | Target Value (SSTV) |
|--------------|---------------------|
| Antimony     | 7.9E+00             |
| Arsenic      | 5.4E+00             |
| Barium       | 1.1E+03             |
| Cadmium      | 1.1E+00             |
| Chromium III | 7.4E+01             |
| Chromium VI  | 6.7E+00             |
| Copper       | 9.1E+00             |
| Iron         | 1.6E+02             |
| Lead         | 7.8E+00             |
| Manganese    | 3.6E+01             |
| Mercury      | 2.6E-02             |
| Nickel       | 2.0E+01             |
| Selenium     | 3.3E+00             |
| Silver       | 3.4E+00             |
| Zinc         | 7.5E+01             |

Note: do not use QT's lower than the minimum QT's provided in agency guidance

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: BP Products NA - Montvale Terminal

Permit No.: V/A0054577

Receiving Stream: South Fork of Goose Creek - Hydrostatic Testing via Outfall 003

Version: OWP Guidance Memo 00-2011 (8/24/00)

| Stream Information               |            | Stream Flows                  |  |                           |  | Mixing Information            |  |  |  | Effluent Information         |  |                                  |  |
|----------------------------------|------------|-------------------------------|--|---------------------------|--|-------------------------------|--|--|--|------------------------------|--|----------------------------------|--|
|                                  |            | 1Q10 (Annual) = 0.48 MGD      |  | Annual - 1Q10 Mix = 100 % |  | Annual - 1Q10 Mix = 100 %     |  | Mean Hardness (as CaCO3) = 144.17 mg/L |  | 90% Temp (Annual) = 20 deg C |  | 90% Temp (Wet season) = 12 deg C |  |
| Mean Hardness (as CaCO3) =       | 172 mg/L   | 7Q10 (Annual) = 0.51 MGD      |  | -7Q10 Mix = 100 %         |  | -3QQ10 Mix = 100 %            |  | 90% Maximum pH = 8.67 SU               |  | 90% Maximum pH = 6.34 SU     |  | 10% Maximum pH = 0.24 MGD        |  |
| 90% Temperature (Annual) =       | 21.3 deg C | 30Q10 (Annual) = 0.56 MGD     |  | -3QQ10 Mix = 100 %        |  | Wet Season - 1Q10 Mix = 100 % |  | 10% Maximum pH = 10% Maximum pH =      |  | Discharge Flow =             |  |                                  |  |
| 90% Temperature (Wet season) =   | 21.3 deg C | 1Q10 (Wet season) = 0.72 MGD  |  | -3QQ10 Mix = 100 %        |  |                               |  |  |  |                              |  |                                  |  |
| 90% Maximum pH =                 | 7.8 SU     | 30Q10 (Wet season) = 0.83 MGD |  | -3QQ10 Mix = 100 %        |  |                               |  |  |  |                              |  |                                  |  |
| 10% Maximum pH =                 | 7.8 SU     | 30Q5 = 0.63 MGD               |  |                           |  |                               |  |  |  |                              |  |                                  |  |
| Tier Designation (1 or 2) =      | 2          | Harmonic Mean = 1.41 MGD      |  |                           |  |                               |  |  |  |                              |  |                                  |  |
| Public Water Supply (PWS) Y/N? = | Y          | Annual Average = 1.41 MGD     |  |                           |  |                               |  |  |  |                              |  |                                  |  |
| Trout Present Y/N? =             | N          |                               |  |                           |  |                               |  |  |  |                              |  |                                  |  |
| Early Life Stages Present Y/N? = | Y          |                               |  |                           |  |                               |  |  |  |                              |  |                                  |  |

| Parameter<br>(ug/l unless noted)    | Background<br>Conc. | Water Quality Criteria |          |          |         | Wasteload Allocations |         |          |         | Antidegradation Baseline |          |          |         | Most Limiting Allocations |         |          |         |         |
|-------------------------------------|---------------------|------------------------|----------|----------|---------|-----------------------|---------|----------|---------|--------------------------|----------|----------|---------|---------------------------|---------|----------|---------|---------|
|                                     |                     | Acute                  | Chronic  | HH (PWS) | HH      | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic  | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) | HH      |         |
| Aceanaphene                         | 0                   | -                      | -        | 1.2E+03  | 2.7E+03 | -                     | -       | 4.4E+03  | 9.8E+03 | -                        | -        | 1.2E+02  | 2.7E+02 | -                         | -       | 4.4E+02  | 9.8E+02 |         |
| Acrolein                            | 0                   | -                      | -        | 3.2E+02  | 7.8E+02 | -                     | -       | 1.2E+03  | 2.8E+03 | -                        | -        | 3.2E+01  | 7.8E+01 | -                         | -       | 1.2E+02  | 2.8E+02 |         |
| Acrylonitrile <sup>c</sup>          | 0                   | -                      | -        | 5.9E+01  | 6.6E+00 | -                     | -       | 4.1E+00  | 4.5E+01 | -                        | -        | 5.9E+02  | 6.6E+01 | -                         | -       | 4.1E+01  | 4.5E+00 |         |
| Aldrin <sup>c</sup>                 | 0                   | 3.0E+00                | -        | 1.3E+03  | 1.4E+03 | 9.0E+00               | -       | 8.9E+03  | 9.6E+03 | 7.5E+01                  | -        | 1.3E+04  | 1.4E+04 | 2.3E+00                   | -       | 8.9E+04  | 9.6E+04 |         |
| Ammonia-N (mg/l)<br>(Yearly)        | 0                   | 9.27E+00               | 1.78E+00 | -        | -       | 2.8E+01               | 5.9E+00 | -        | -       | 2.32E+00                 | 4.44E+01 | -        | -       | 7.0E+00                   | 1.5E+00 | -        | -       |         |
| Ammonia-N (mg/l)<br>(High Flow)     | 0                   | 1.00E+01               | 2.08E+00 | -        | -       | 4.0E+01               | 9.3E+00 | -        | -       | 2.51E+00                 | 5.21E+01 | -        | -       | 1.0E+01                   | 2.3E+00 | -        | -       |         |
| Anthracene                          | 0                   | -                      | -        | 9.6E+03  | 1.1E+05 | -                     | -       | 3.5E+04  | 4.0E+05 | -                        | -        | 9.6E+02  | 1.1E+04 | -                         | -       | 3.5E+03  | 4.0E+04 |         |
| Antimony                            | 1.25                | -                      | -        | 1.4E+01  | 4.3E+03 | -                     | -       | 4.7E+01  | 1.6E+04 | -                        | -        | 2.5E+00  | 4.3E+02 | -                         | -       | 5.9E+00  | 1.6E+03 |         |
| Arsenic                             | 0.45                | 3.4E+02                | 1.5E+02  | 1.0E+01  | -       | 1.0E+03               | 4.7E+02 | 3.5E+01  | -       | 8.5E+01                  | 3.8E+01  | 1.4E+00  | -       | 2.6E+02                   | 1.2E+02 | 3.9E+00  | -       |         |
| Banum                               | 52                  | -                      | -        | 2.0E+03  | -       | -                     | -       | 7.1E+03  | -       | -                        | -        | 2.5E+02  | -       | -                         | -       | 7.6E+02  | -       |         |
| Benzene <sup>c</sup>                | 0                   | -                      | -        | 1.2E+01  | 7.1E+02 | -                     | -       | 8.3E+01  | 4.9E+03 | -                        | -        | 1.2E+00  | 7.1E+01 | -                         | -       | 8.3E+00  | 4.9E+02 |         |
| Benzidine <sup>c</sup>              | 0                   | -                      | -        | 1.2E+03  | 5.4E+03 | -                     | -       | 8.3E+03  | 3.7E+02 | -                        | -        | 1.2E+04  | 5.4E+04 | -                         | -       | 8.3E+04  | 3.7E+03 |         |
| Benzo (a) anthracene <sup>c</sup>   | 0                   | -                      | -        | 4.4E+02  | 4.9E+01 | -                     | -       | 3.0E+01  | 3.4E+00 | -                        | -        | 4.4E+03  | 4.9E+02 | -                         | -       | 3.0E+02  | 3.4E+01 |         |
| Benzo (b) fluoranthene <sup>c</sup> | 0                   | -                      | -        | 4.4E+02  | 4.9E+01 | -                     | -       | 3.0E+01  | 3.4E+00 | -                        | -        | 4.4E+03  | 4.9E+02 | -                         | -       | 3.0E+02  | 3.4E+01 |         |
| Benzo (K) fluoranthene <sup>c</sup> | 0                   | -                      | -        | 4.4E+02  | 4.9E+01 | -                     | -       | 3.0E+01  | 3.4E+00 | -                        | -        | 4.4E+03  | 4.9E+02 | -                         | -       | 3.0E+02  | 3.4E+01 |         |
| Benzo (a) pyrene <sup>c</sup>       | 0                   | -                      | -        | 4.4E+02  | 4.9E+01 | -                     | -       | 3.0E+01  | 3.4E+00 | -                        | -        | 4.4E+03  | 4.9E+02 | -                         | -       | 3.0E+02  | 3.4E+01 |         |
| Bis2-Chloroethyl Ether              | 0                   | -                      | -        | 3.1E+01  | 1.4E+01 | -                     | -       | 1.1E+00  | 5.1E+01 | -                        | -        | 3.1E+02  | 1.4E+00 | -                         | -       | 1.1E+01  | 5.1E+00 |         |
| Bis2-Chloroisopropyl Ether          | 0                   | -                      | -        | 1.4E+03  | 1.7E+05 | -                     | -       | 5.1E+03  | 6.2E+05 | -                        | -        | 1.4E+02  | 1.7E+04 | -                         | -       | 5.1E+02  | 6.2E+04 |         |
| Bromofom <sup>c</sup>               | 0                   | -                      | -        | 4.4E+01  | 3.6E+03 | -                     | -       | 3.0E+02  | 2.5E+04 | -                        | -        | 4.4E+00  | 3.6E+02 | -                         | -       | 3.0E+02  | 3.4E+01 |         |
| Butylbenzylphthalate                | 0                   | -                      | -        | 3.0E+03  | 5.2E+03 | -                     | -       | 1.1E+04  | 1.9E+04 | -                        | -        | 3.0E+02  | 5.2E+02 | -                         | -       | 1.1E+03  | 2.5E+03 |         |
| Cadmium                             | 0                   | 6.8E+00                | 1.7E+00  | 5.0E+00  | -       | 2.0E+01               | 5.2E+00 | 1.8E+01  | -       | 1.7E+00                  | 4.2E+01  | 5.0E+01  | -       | 5.1E+00                   | 1.3E+00 | -        | -       |         |
| Carbon Tetrachloride <sup>c</sup>   | 0                   | -                      | -        | 2.5E+00  | 4.4E+01 | -                     | -       | 1.1E+01  | 3.0E+02 | -                        | -        | 2.5E+01  | 4.4E+00 | -                         | -       | 1.7E+00  | 3.0E+01 |         |
| Chlordane <sup>c</sup>              | 0                   | 2.4E+00                | 4.3E+03  | 2.1E+02  | 2.2E+02 | 7.2E+00               | 1.3E+02 | 1.4E+01  | 1.5E+01 | 6.0E+01                  | 1.1E+03  | 2.1E+03  | 2.2E+03 | 1.8E+00                   | 1.7E+00 | 3.0E+01  | 3.0E+01 |         |
| Chloride                            | 0                   | 8.6E+05                | 2.3E+05  | 2.5E+05  | -       | 2.6E+06               | 7.2E+05 | 9.1E+05  | -       | 2.2E+05                  | 5.8E+04  | 2.5E+04  | -       | 6.5E+05                   | 1.8E+05 | 9.1E+04  | -       |         |
| TRC                                 | 0                   | 1.9E+01                | 1.1E+01  | --       | 5.7E+01 | 3.4E+01               | --      | --       | 4.8E+00 | 2.8E+00                  | --       | --       | 1.4E+01 | 8.6E+00                   | --      | --       | 1.4E+01 | 8.6E+00 |
| Chlorobenzene                       | 0                   | -                      | -        | 6.8E+02  | 2.1E+04 | -                     | -       | 2.5E+03  | 7.6E+04 | --                       | --       | 6.8E+01  | 2.1E+03 | --                        | --      | 2.5E+02  | 7.6E+03 |         |

| Parameter<br>(ug/unless noted)                     | Background<br>Conc. | Water Quality Criteria |         |                                   | Wasteload Allocations |         |         | Antidegradation Baseline |         |          | Antidegradation Allocations |         |          | Most Limiting Allocations |         |          |         |         |         |    |
|--|---------------------|------------------------|---------|-----------------------------------|-----------------------|---------|---------|--------------------------|---------|----------|-----------------------------|---------|----------|---------------------------|---------|----------|---------|---------|---------|----|
|  |                     | Acute                  | Chronic | HH (PWS)                          | Acute                 | Chronic | HH      | Acute                    | Chronic | HH (PWS) | Acute                       | Chronic | HH (PWS) | Acute                     | Chronic | HH (PWS) |         |         |         |    |
| Chlorodibromomethane <sup>c</sup>                  | 0                   | --                     | --      | 4.1E+00                           | 3.4E+02               | --      | --      | 2.8E+01                  | 2.3E+03 | --       | --                          | 4.1E+01 | 3.4E+01  | --                        | --      | 2.8E+00  | 2.3E+02 |         |         |    |
| Chloroform <sup>c</sup>                            | 0                   | --                     | --      | 3.5E+02                           | 2.9E+04               | --      | --      | 2.4E+03                  | 2.0E+05 | --       | --                          | 3.5E+01 | 2.9E+03  | --                        | --      | 2.4E+02  | 2.0E+04 |         |         |    |
| 2-Chloronaphthalene                                | 0                   | --                     | --      | 1.7E+03                           | 4.3E+03               | --      | --      | 6.2E+03                  | 1.6E+04 | --       | --                          | 1.7E+02 | 4.3E+02  | --                        | --      | 6.2E+02  | 1.6E+03 |         |         |    |
| 2-Chlorophenol                                     | 0                   | --                     | --      | 1.2E+02                           | 4.0E+02               | --      | --      | 4.4E+02                  | 1.5E+03 | --       | --                          | 1.2E+01 | 4.0E+01  | --                        | --      | 4.4E+01  | 1.5E+02 |         |         |    |
| Chloryfos  | 0                   | 8.3E-02                | 4.1E-02 | --                                | --                    | 2.5E-01 | 1.3E-01 | --                       | --      | 2.1E-02  | 1.0E-02                     | --      | --       | 4.4E+01                   | 1.5E+02 | --       | --      |         |         |    |
| Chromium III                                       | 0                   | 8.5E-02                | 1.1E+02 | --                                | --                    | 2.5E+03 | 3.5E+02 | --                       | --      | 2.1E+02  | 2.8E+01                     | --      | --       | 6.4E+02                   | 8.6E+01 | --       | --      |         |         |    |
| Chromium VI  | 0                   | 1.6E+01                | 1.1E+01 | --                                | --                    | 4.8E+01 | 3.4E+01 | --                       | --      | 4.0E+00  | 2.8E+00                     | --      | --       | 1.2E+01                   | 8.6E+00 | --       | --      |         |         |    |
| Chromium, Total                                    | 0.13                | --                     | --      | 1.0E+02                           | --                    | --      | --      | 3.6E+02                  | --      | --       | 1.0E+01                     | --      | --       | --                        | 1.2E+01 | 8.6E+00  | --      | --      |         |    |
| Chrysene <sup>c</sup>                              | 0                   | --                     | --      | 4.4E-02                           | 4.9E-01               | --      | --      | 3.0E-01                  | 3.4E+00 | --       | --                          | 4.4E-03 | 4.9E-02  | --                        | --      | 3.4E-01  | 3.4E-01 | --      | --      |    |
| Copper   | 0.22                | 2.1E+01                | 1.4E+01 | 1.3E+03                           | --                    | 6.3E+01 | 4.2E+01 | 4.7E+03                  | --      | 5.5E+00  | 3.6E+00                     | 1.3E+02 | --       | 1.6E+01                   | 1.1E+01 | 4.7E+02  | --      | 4.7E+02 | --      | -- |
| Cyanide  | 0                   | 2.2E+01                | 5.2E+00 | 7.0E+02                           | 2.2E+05               | 6.6E+01 | 1.6E+01 | 2.5E+03                  | 7.8E+05 | 5.5E+00  | 1.3E+00                     | 7.0E+01 | 2.2E+04  | 1.7E+01                   | 4.1E+00 | 2.5E+02  | 7.8E+04 | --      | --      |    |
| DDC <sup>c</sup>                                   | 0                   | --                     | --      | 8.3E-03                           | 8.4E-03               | --      | --      | 5.7E-02                  | 5.8E-02 | --       | --                          | 8.3E-04 | 8.4E-04  | --                        | --      | 5.7E-03  | 5.8E-03 | --      | --      |    |
| DDE <sup>c</sup>                                   | 0                   | --                     | --      | 5.9E-03                           | 5.9E-03               | --      | --      | 4.1E-02                  | 4.1E-02 | --       | --                          | 5.9E-04 | 5.9E-04  | --                        | --      | 4.1E-03  | 4.1E-03 | --      | --      |    |
| DDT <sup>c</sup>                                   | 0                   | 1.1E+00                | 1.0E-03 | 5.9E-03                           | 3.3E+00               | 3.1E-03 | 4.1E-02 | 2.8E-01                  | 2.5E-04 | 5.9E-04  | 8.3E-01                     | 7.8E-04 | 4.1E-03  | 8.3E-01                   | 7.8E-04 | 4.1E-03  | 4.1E-03 | --      | --      |    |
| Demeton  | 0                   | --                     | 1.0E-01 | --                                | --                    | --      | 3.1E-01 | --                       | --      | 2.5E-02  | --                          | --      | --       | 7.8E-02                   | --      | --       | 7.8E-02 | --      | --      | -- |
| Dibenz(a,h)anthracene <sup>c</sup>                 | 0                   | --                     | --      | 4.4E-02                           | 4.9E-01               | --      | --      | 3.0E-01                  | 3.4E+00 | --       | --                          | 4.4E-03 | 4.9E-02  | --                        | --      | 3.0E-02  | 3.4E-01 | --      | --      |    |
| Diethyl phthalate                                  | 0                   | --                     | --      | 2.7E+03                           | 1.2E+04               | --      | --      | 9.8E+03                  | 4.4E+04 | --       | --                          | 2.7E+02 | 1.2E+03  | --                        | --      | 9.8E+02  | 4.4E+03 | --      | --      |    |
| Dichloromethane                                    | 0                   | --                     | --      | (Methylene Chloride) <sup>c</sup> | --                    | --      | 4.7E+01 | 1.6E+04                  | --      | --       | 3.2E+02                     | 1.1E+05 | --       | --                        | 4.7E+00 | 1.6E+03  | --      | --      |         |    |
| 1,2-Dichlorobenzene                                | 0                   | --                     | --      | 2.7E+03                           | 1.7E+04               | --      | --      | 9.8E+03                  | 6.2E+04 | --       | --                          | 2.7E+02 | 1.7E+03  | --                        | --      | 9.8E+02  | 6.2E+03 | --      | --      |    |
| 1,3-Dichlorobenzene                                | 0                   | --                     | --      | 4.0E+02                           | 2.6E+03               | --      | --      | 1.5E+03                  | 9.4E+03 | --       | --                          | 4.0E+01 | 2.6E+02  | --                        | --      | 1.5E+02  | 9.4E+02 | --      | --      |    |
| 1,4-Dichlorobenzene                                | 0                   | --                     | --      | 4.0E+02                           | 2.6E+03               | --      | --      | 1.5E+03                  | 9.4E+03 | --       | --                          | 4.0E+01 | 2.6E+02  | --                        | --      | 1.5E+02  | 9.4E+02 | --      | --      |    |
| 3,3-Dichlorobenzidine <sup>c</sup>                 | 0                   | --                     | --      | 4.0E-01                           | 7.7E-01               | --      | --      | 2.8E+00                  | 5.3E+00 | --       | --                          | 4.0E-02 | 7.7E-02  | --                        | --      | 2.8E-01  | 5.3E-01 | --      | --      |    |
| Dichlorobromomethane <sup>c</sup>                  | 0                   | --                     | --      | 5.6E+00                           | 4.6E+02               | --      | --      | 3.9E+01                  | 3.2E+03 | --       | --                          | 5.6E-01 | 4.6E+01  | --                        | --      | 3.9E+00  | 3.2E+02 | --      | --      |    |
| 1,2-Dichloroethane <sup>c</sup>                    | 0                   | --                     | --      | 3.8E+00                           | 9.9E+02               | --      | --      | 2.6E+01                  | 6.8E+03 | --       | --                          | 3.8E-01 | 9.9E+01  | --                        | --      | 2.6E+00  | 6.8E+02 | --      | --      |    |
| 1,1-Dichloroethylene                               | 0                   | --                     | --      | 3.1E+02                           | 1.7E+04               | --      | --      | 1.1E+03                  | 6.2E+04 | --       | --                          | 3.1E+01 | 1.7E+03  | --                        | --      | 1.1E+02  | 6.2E+03 | --      | --      |    |
| 1,2-trans-dichloroethylene                         | 0                   | --                     | --      | 7.0E+02                           | 1.4E+05               | --      | --      | 2.5E+03                  | 5.1E+05 | --       | --                          | 7.0E+01 | 1.4E+04  | --                        | --      | 2.5E+02  | 5.1E+04 | --      | --      |    |
| 2,4-Dichlorophenol                                 | 0                   | --                     | --      | 9.3E+01                           | 7.9E+02               | --      | --      | 3.4E+02                  | 2.9E+03 | --       | --                          | 9.3E+00 | 7.9E+01  | --                        | --      | 3.4E+01  | 2.9E+02 | --      | --      |    |
| 2,4-Dichlorophenoxyacetic acid (2,4-D)             | 0                   | --                     | --      | 1.0E+02                           | --                    | --      | --      | 3.6E+02                  | --      | --       | 1.0E+01                     | --      | --       | --                        | 3.6E+01 | --       | --      | --      |         |    |
| 1,2-Dichloropropane <sup>f</sup>                   | 0                   | --                     | --      | 5.2E+00                           | 3.9E+02               | --      | --      | 3.6E+01                  | 2.7E+03 | --       | --                          | 5.2E+01 | 3.9E+01  | --                        | --      | 3.6E+00  | 2.7E+02 | --      | --      |    |
| 1,3-Dichloropropene                                | 0                   | --                     | --      | 1.0E+01                           | 1.7E+03               | --      | --      | 3.6E+01                  | 6.2E+03 | --       | --                          | 1.0E+00 | 1.7E+02  | --                        | --      | 3.6E+00  | 6.2E+02 | --      | --      |    |
| Dieidrin <sup>c</sup>                              | 0                   | 2.4E+01                | 5.6E-02 | 1.4E+03                           | 7.2E+01               | 1.8E-01 | 9.6E-03 | 6.0E-02                  | 1.4E-02 | 1.4E-04  | 1.8E-01                     | 4.4E-02 | 9.6E-04  | 1.8E-01                   | 4.4E-02 | 9.6E-04  | 9.6E-04 | 4.4E+04 | --      |    |
| Diethyl Phthalate                                  | 0                   | --                     | --      | 2.3E+04                           | 1.2E+05               | --      | --      | 8.3E+04                  | 4.4E+05 | --       | --                          | 2.3E+03 | 1.2E+04  | --                        | --      | 8.3E+03  | 4.4E+04 | --      | --      |    |
| Di-2-Ethylhexyl Phthalate <sup>c</sup>             | 0                   | --                     | --      | 1.8E+01                           | 5.9E+01               | --      | --      | 1.2E+02                  | 4.1E+02 | --       | --                          | 1.8E+00 | 5.9E+00  | --                        | --      | 1.2E+01  | 4.1E+01 | --      | --      |    |
| 2,4-Dimethylphenol                                 | 0                   | --                     | --      | 5.4E+02                           | 2.3E+03               | --      | --      | 2.0E+03                  | 8.3E+03 | --       | --                          | 5.4E+01 | 2.3E+02  | --                        | --      | 2.0E+02  | 8.3E+02 | --      | --      |    |
| Dimethyl Phthalate                                 | 0                   | --                     | --      | 3.1E+05                           | 2.9E+06               | --      | --      | 1.1E+06                  | 1.1E+07 | --       | --                          | 3.1E+04 | 2.9E+05  | --                        | --      | 1.1E+05  | 1.1E+06 | --      | --      |    |
| Di-n-Butyl Phthalate                               | 0                   | --                     | --      | 2.7E+03                           | 1.2E+04               | --      | --      | 9.8E+03                  | 4.4E+04 | --       | --                          | 2.7E+02 | 1.2E+03  | --                        | --      | 9.8E+02  | 4.4E+03 | --      | --      |    |
| 2,4-Dinitrophenol                                  | 0                   | --                     | --      | 7.0E+01                           | 1.4E+04               | --      | --      | 2.5E+02                  | 5.1E+04 | --       | --                          | 7.0E+00 | 1.4E+03  | --                        | --      | 2.5E+01  | 5.1E+03 | --      | --      |    |
| 2-Methyl-4,6-Dinitrophenol                         | 0                   | --                     | --      | 1.3E+01                           | 7.65E+02              | --      | --      | 4.9E+01                  | 2.8E+03 | --       | --                          | 1.3E+00 | 7.7E+01  | --                        | --      | 4.9E+00  | 2.8E+02 | --      | --      |    |
| 2,4-Dinitrotoluene <sup>c</sup>                    | 0                   | --                     | --      | 1.1E+00                           | 9.1E+01               | --      | --      | 7.6E+00                  | 6.3E+02 | --       | --                          | 1.1E+01 | 9.1E+00  | --                        | --      | 7.6E+01  | 6.3E+01 | --      | --      |    |
| Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq) | 0                   | --                     | --      | 1.2E-06                           | 1.2E-06               | --      | --      | 8.3E-06                  | 8.3E-06 | --       | --                          | 1.2E-07 | 1.2E-07  | --                        | --      | 8.3E-07  | 8.3E-07 | --      | --      |    |
| 1,2-Diphenylhydrazine <sup>c</sup>                 | 0                   | --                     | --      | 4.0E-01                           | 5.4E+00               | --      | --      | 2.8E+00                  | 3.7E+01 | --       | --                          | 4.0E-02 | 5.4E-01  | --                        | --      | 2.8E-01  | 3.7E+00 | --      | --      |    |
| Alpha-Endosulfan                                   | 0                   | 2.2E+01                | 5.6E-02 | 1.1E+02                           | 6.6E+01               | 1.8E-01 | 4.0E+02 | 5.5E-02                  | 1.4E-02 | 1.1E+01  | 2.4E+01                     | 1.7E-01 | 4.4E-02  | 4.0E+01                   | 8.7E+01 | 1.7E-01  | 4.4E-02 | 4.0E+01 | 8.7E+01 |    |
| Beta-Endosulfan                                    | 0                   | 2.2E+01                | 5.6E-02 | 1.1E+02                           | 6.4E+02               | 1.8E-01 | 4.0E+02 | 5.5E-02                  | 1.4E-02 | 1.1E+01  | 2.4E+01                     | 1.7E-01 | 4.4E-02  | 4.0E+01                   | 8.7E+01 | 1.7E-01  | 4.4E-02 | 4.0E+01 | 8.7E+01 |    |
| Endosulfan Sulfate                                 | 0                   | 8.6E-02                | 3.6E-02 | 7.6E-01                           | 8.1E-01               | 2.6E+01 | 1.1E-01 | 2.8E+00                  | 2.2E+02 | 9.0E-03  | 7.6E-02                     | 8.1E-02 | 6.5E-02  | 2.8E-02                   | 2.9E-01 | 6.5E-02  | 2.8E-02 | 2.8E-01 | 2.9E-01 |    |
| Endrin   | 0                   | --                     | --      | 7.6E-01                           | 8.1E-01               | --      | --      | 2.8E+00                  | 2.9E+00 | --       | --                          | 7.6E-02 | 8.1E-02  | --                        | --      | 2.8E-01  | 2.9E-01 | --      | --      |    |
| Endrin Aldehyde                                    | 0                   | --                     | --      | 7.6E-01                           | 8.1E-01               | --      | --      | 2.8E+00                  | 2.9E+00 | --       | --                          | 7.6E-02 | 8.1E-02  | --                        | --      | 2.8E-01  | 2.9E-01 | --      | --      |    |

| Parameter<br>(ug/l unless noted)      | Background<br>Conc.              | Water Quality Criteria |         |          |         | Wasteload Allocations |         |          |         | Antidegradation Baseline |         |          |         | Antidegradation Allocations |         |          |         | Most Limiting Allocations |         |          |         |         |
|---------------------------------------|----------------------------------|------------------------|---------|----------|---------|-----------------------|---------|----------|---------|--------------------------|---------|----------|---------|-----------------------------|---------|----------|---------|---------------------------|---------|----------|---------|---------|
|                                       |                                  | Acute                  | Chronic | HH (PWS) | HH      | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic | HH (PWS) | HH      | Acute                       | Chronic | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) | HH      |         |
| Ethylbenzene                          | 0                                | --                     | --      | 3.1E-03  | 2.9E-04 | --                    | --      | 1.1E-04  | 1.1E-05 | --                       | --      | 3.1E+02  | 2.9E+03 | --                          | --      | 1.1E+03  | 1.1E+04 | --                        | --      | 1.1E+03  | 1.1E+04 |         |
| Fluoranthene                          | 0                                | --                     | --      | 3.0E+02  | 3.7E+02 | --                    | --      | 1.1E+03  | 1.3E+03 | --                       | --      | 1.1E+02  | 1.3E+02 | --                          | --      | 1.1E+02  | 1.3E+02 | --                        | --      | 1.1E+02  | 1.3E+02 |         |
| Fluorene                              | 0                                | --                     | --      | 1.3E+03  | 1.4E+04 | --                    | --      | 4.7E+03  | 5.1E+04 | --                       | --      | 1.3E+02  | 1.4E+03 | --                          | --      | 4.7E+02  | 5.1E+03 | --                        | --      | 4.7E+02  | 5.1E+03 |         |
| Fuming Agents                         | 0                                | --                     | --      | 5.0E+02  | --      | --                    | --      | 1.8E+03  | --      | --                       | --      | 5.0E+01  | --      | --                          | --      | 1.8E+02  | --      | --                        | --      | 1.8E+02  | --      |         |
| Guthion                               | 0                                | --                     | 1.0E-02 | --       | --      | --                    | 3.1E-02 | --       | --      | --                       | 2.5E-03 | --       | --      | --                          | 7.8E-03 | --       | --      | --                        | 7.8E-03 | --       |         |         |
| Heptachlor                            | c                                | 0                      | 5.2E-01 | 3.8E-03  | 2.1E-03 | 1.6E+00               | 1.2E+02 | 1.4E-02  | 2.1E-04 | 2.1E-04                  | 1.3E-01 | 9.5E-04  | 1.1E+04 | 3.9E-01                     | 3.0E-03 | 1.4E-03  | 3.9E-01 | 3.0E-03                   | 1.4E-03 | 3.9E-01  | 3.0E-03 | 1.4E-03 |
| Heptachlor Epoxide <sup>f</sup>       | 0                                | 5.2E-01                | 3.8E-03 | 1.0E-03  | 1.1E-03 | 1.6E+00               | 1.2E+02 | 9.6E-03  | 7.6E-03 | 7.6E-04                  | 1.3E-01 | 9.5E-04  | 1.0E+04 | 3.9E-01                     | 3.0E-03 | 1.4E-03  | 3.9E-01 | 3.0E-03                   | 1.4E-03 | 3.9E-01  | 3.0E-03 | 1.4E-03 |
| Hexachlorobenzene <sup>f</sup>        | 0                                | --                     | --      | 7.5E-03  | 7.7E-03 | --                    | --      | 5.2E-02  | 5.3E-02 | --                       | --      | 7.5E-04  | 7.7E-04 | --                          | --      | 5.2E-03  | 5.3E-03 | --                        | --      | 5.2E-03  | 5.3E-03 |         |
| Hexachlorobutadiene <sup>f</sup>      | 0                                | --                     | --      | 4.4E+00  | 5.0E+02 | --                    | --      | 3.0E+01  | 3.4E+03 | --                       | --      | 4.4E+01  | 5.0E+01 | --                          | --      | 3.0E+00  | 3.4E+02 | --                        | --      | 3.0E+00  | 3.4E+02 |         |
| Hexachlorocyclohexane                 | Alpha+BHC <sup>c</sup>           | 0                      | --      | --       | 3.9E-02 | 1.3E-01               | --      | --       | 2.7E-01 | 8.9E-01                  | --      | --       | 3.9E-03 | 1.3E-02                     | --      | --       | 2.7E-02 | 8.9E-02                   | --      | --       | 2.7E-02 | 8.9E-02 |
| Hexachlorocyclohexane                 | Beta+BHC <sup>c</sup>            | 0                      | --      | --       | 1.4E-01 | 4.6E-01               | --      | --       | 9.6E-01 | 3.2E+00                  | --      | --       | 1.4E-02 | 4.6E-02                     | --      | --       | 9.6E-02 | 3.2E+01                   | --      | --       | 9.6E-02 | 3.2E+01 |
| Hexachlorocyclohexane                 | Gamma+BHC <sup>c</sup> (Lindane) | 0                      | 9.5E-01 | --       | 1.9E-01 | 6.3E-01               | 2.9E+00 | --       | 1.3E+00 | 4.3E+00                  | 2.4E-01 | --       | 1.9E-02 | 6.3E-02                     | 7.1E-01 | --       | 1.3E-01 | 4.3E-01                   | 7.1E-01 | --       | 1.3E-01 | 4.3E-01 |
| Hexachlorocyclopentadiene             | 0                                | --                     | --      | 2.4E+02  | 1.7E-04 | --                    | --      | 8.7E-02  | 6.2E+04 | --                       | --      | 2.4E+01  | 1.7E+03 | --                          | --      | 8.7E+01  | 6.2E+03 | --                        | --      | 8.7E+01  | 6.2E+03 |         |
| Hexachloroethane <sup>f</sup>         | 0                                | --                     | 1.9E+01 | 8.9E+01  | --      | --                    | 1.3E+02 | 6.1E+02  | --      | --                       | 1.9E+00 | 8.9E+00  | --      | --                          | 1.3E+01 | 6.1E+01  | --      | --                        | 1.3E+01 | 6.1E+01  |         |         |
| Hydrogen Sulfide                      | 0                                | --                     | 2.0E+00 | --       | --      | --                    | 6.3E+00 | --       | --      | --                       | 5.0E-01 | --       | --      | --                          | 1.6E+00 | --       | --      | --                        | 1.6E+00 | --       |         |         |
| Indeno (1,2,3-cd) pyrene <sup>c</sup> | 0                                | --                     | --      | 4.4E-02  | 4.9E-01 | --                    | --      | 3.0E-01  | 3.4E+00 | --                       | --      | 4.4E-03  | 4.9E-02 | --                          | --      | 3.0E-02  | 3.4E-01 | --                        | --      | 3.0E-02  | 3.4E-01 |         |
| Iron                                  | 0                                | --                     | 3.0E+02 | --       | --      | --                    | 1.1E+03 | --       | --      | --                       | 3.0E+01 | --       | --      | --                          | 1.1E+02 | --       | --      | --                        | 1.1E+02 | --       |         |         |
| Isophorone <sup>f</sup>               | 0                                | --                     | 3.6E+02 | 2.6E+04  | --      | --                    | 2.5E+03 | 1.8E+05  | --      | --                       | 3.6E+01 | 2.6E+03  | --      | --                          | 2.5E+02 | 1.8E+04  | --      | --                        | 2.5E+02 | 1.8E+04  |         |         |
| Kepone                                | 0                                | --                     | 0.0E+00 | --       | --      | --                    | 0.0E+00 | --       | --      | --                       | 0.0E+00 | --       | --      | --                          | 0.0E+00 | --       | --      | --                        | 0.0E+00 | --       |         |         |
| Lead                                  | 0                                | 2.2E-02                | 2.5E+01 | 1.5E+01  | --      | --                    | 6.6E+02 | 7.9E+01  | 5.4E+01 | --                       | 5.5E+01 | 6.5E+00  | 1.5E+00 | --                          | 1.7E+02 | 2.0E+01  | 5.4E+00 | --                        | 1.7E+02 | 2.0E+01  |         |         |
| Malathion                             | 0                                | --                     | 1.0E-01 | --       | --      | --                    | 3.1E-01 | --       | --      | --                       | 2.5E-02 | --       | --      | --                          | 7.8E-02 | --       | --      | --                        | 7.8E-02 | --       |         |         |
| Manganese                             | 20                               | --                     | --      | 5.0E+01  | --      | --                    | --      | 1.3E+02  | --      | --                       | --      | 2.3E+01  | --      | --                          | --      | 3.1E+01  | --      | --                        | --      | 3.1E+01  | --      |         |
| Mercury                               | 0                                | 1.4E+00                | --      | 7.7E-01  | 5.0E-02 | 5.1E-02               | 4.2E+00 | 2.4E+00  | 1.8E-01 | 3.5E-01                  | 1.9E-01 | 5.0E-03  | 5.1E-03 | 1.1E+00                     | 6.0E-01 | 1.8E-02  | 1.1E+00 | 6.0E-01                   | 1.8E-02 | 1.1E+00  | 6.0E-01 | 1.8E-02 |
| Methyl Bromide                        | 0                                | --                     | 4.8E+01 | 4.0E+03  | --      | --                    | 1.7E+02 | 1.5E+04  | --      | --                       | 4.8E+00 | 4.0E+02  | --      | --                          | 1.7E+01 | 1.5E+03  | --      | --                        | 1.7E+01 | 1.5E+03  |         |         |
| Methoxychlor                          | 0                                | --                     | 3.0E-02 | 1.0E+02  | --      | --                    | 9.4E-02 | 3.6E+02  | --      | --                       | 7.5E-03 | 1.0E+01  | --      | --                          | 2.3E-02 | 3.6E+01  | --      | --                        | 2.3E-02 | 3.6E+01  |         |         |
| Mirex                                 | 0                                | --                     | 0.0E+00 | --       | --      | --                    | 0.0E+00 | --       | --      | --                       | 0.0E+00 | --       | --      | --                          | 0.0E+00 | --       | --      | --                        | 0.0E+00 | --       |         |         |
| Monochlorobenzene                     | 0                                | --                     | --      | 6.8E+02  | 2.1E+04 | --                    | --      | 2.5E+03  | 7.6E+04 | --                       | --      | 6.8E+01  | 2.1E+03 | --                          | --      | 2.5E+02  | 7.6E+03 | --                        | --      | 2.5E+02  | 7.6E+03 |         |
| Nickel                                | 0.38                             | 2.8E+02                | 3.1E+01 | 6.1E+02  | 4.6E+03 | 8.3E+02               | 9.5E+01 | 2.2E+03  | 1.7E+04 | 6.9E+01                  | 7.9E+00 | 6.1E+01  | 4.6E+02 | 2.1E+02                     | 2.4E+01 | 2.2E+02  | 1.7E+03 | 2.4E+01                   | 2.2E+02 | 1.7E+03  |         |         |
| Nitrate (as N)                        | 0                                | --                     | --      | 1.0E+04  | --      | --                    | --      | 3.6E+04  | --      | --                       | --      | 1.0E+03  | --      | --                          | --      | 3.6E+03  | --      | --                        | --      | 3.6E+03  | --      |         |
| Nitrobenzene                          | 0                                | --                     | --      | 1.7E+01  | 1.9E+03 | --                    | --      | 6.2E+01  | 6.9E+03 | --                       | --      | 1.7E+00  | 1.9E+02 | --                          | --      | 6.2E+00  | 6.9E+02 | --                        | --      | 6.2E+00  | 6.9E+02 |         |
| N-Nitrosodimethylamine <sup>f</sup>   | 0                                | --                     | --      | 6.9E+03  | 8.1E+01 | --                    | --      | 4.7E+02  | 5.6E+02 | --                       | --      | 6.9E+04  | 8.1E+00 | --                          | --      | 4.7E+03  | 5.6E+01 | --                        | --      | 4.7E+03  | 5.6E+01 |         |
| N-Nitrosodiphenylamine <sup>f</sup>   | 0                                | --                     | --      | 5.0E+01  | 1.6E+02 | --                    | --      | 3.4E+02  | 1.1E+03 | --                       | --      | 5.0E+00  | 1.6E+01 | --                          | --      | 3.4E+01  | 1.1E+02 | --                        | --      | 3.4E+01  | 1.1E+02 |         |
| N-Nitrosod-n-Propylamine <sup>f</sup> | 0                                | --                     | --      | 5.0E-02  | 1.4E+01 | --                    | --      | 3.4E+01  | 9.6E+01 | --                       | --      | 5.0E-03  | 1.4E+00 | --                          | --      | 3.4E+02  | 9.6E+00 | --                        | --      | 3.4E+02  | 9.6E+00 |         |
| Parathion                             | 0                                | 6.5E-02                | 1.3E-02 | --       | --      | 2.0E+01               | 4.1E-02 | --       | --      | 1.6E-02                  | 3.3E-03 | --       | --      | 4.9E-02                     | 1.0E-02 | --       | --      | 4.9E-02                   | 1.0E-02 | --       | --      |         |
| PCB-1016                              | 0                                | --                     | 1.4E-02 | --       | --      | --                    | 4.4E-02 | --       | --      | --                       | 3.5E-03 | --       | --      | --                          | 1.1E-02 | --       | --      | --                        | 1.1E-02 | --       |         |         |
| PCB-1221                              | 0                                | --                     | 1.4E-02 | --       | --      | --                    | 4.4E-02 | --       | --      | --                       | 3.5E-03 | --       | --      | --                          | 1.1E-02 | --       | --      | --                        | 1.1E-02 | --       |         |         |
| PCB-1232                              | 0                                | --                     | 1.4E-02 | --       | --      | --                    | 4.4E-02 | --       | --      | --                       | 3.5E-03 | --       | --      | --                          | 1.1E-02 | --       | --      | --                        | 1.1E-02 | --       |         |         |
| PCB-1242                              | 0                                | --                     | 1.4E-02 | --       | --      | --                    | 4.4E-02 | --       | --      | --                       | 3.5E-03 | --       | --      | --                          | 1.1E-02 | --       | --      | --                        | 1.1E-02 | --       |         |         |
| PCB-1248                              | 0                                | --                     | 1.4E-02 | --       | --      | --                    | 4.4E-02 | --       | --      | --                       | 3.5E-03 | --       | --      | --                          | 1.1E-02 | --       | --      | --                        | 1.1E-02 | --       |         |         |
| PCB-1254                              | 0                                | --                     | 1.4E-02 | --       | --      | --                    | 4.4E-02 | --       | --      | --                       | 3.5E-03 | --       | --      | --                          | 1.1E-02 | --       | --      | --                        | 1.1E-02 | --       |         |         |
| PCB-1260                              | 0                                | --                     | 1.4E-02 | --       | --      | --                    | 4.4E-02 | --       | --      | --                       | 3.5E-03 | --       | --      | --                          | 1.1E-02 | --       | --      | --                        | 1.1E-02 | --       |         |         |
| PCB Total <sup>f</sup>                | 0                                | --                     | --      | 1.7E-03  | 1.7E-03 | --                    | --      | 1.2E-02  | 1.2E-02 | --                       | --      | 1.7E-04  | 1.7E-04 | --                          | --      | 1.2E-03  | 1.2E-03 | --                        | --      | 1.2E-03  | 1.2E-03 |         |

| Parameter<br>(ug/l unless noted)                      | Background<br>Conc. | Water Quality Criteria |         |          |         | Wasteload Allocations |         |          |         | Antidegradation Baseline |         |          |         | Antidegradation Allocations |         |          |         | Most Limiting Allocations |         |          |         |
|---|---------------------|------------------------|---------|----------|---------|-----------------------|---------|----------|---------|--------------------------|---------|----------|---------|-----------------------------|---------|----------|---------|---------------------------|---------|----------|---------|
|   |                     | Acute                  | Chronic | HH (PWS) | HH      | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic | HH (PWS) | HH      | Acute                       | Chronic | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) | HH      |
| Pentachlorophenol c                                   | 0                   | 7.0E+00                | 5.5E+00 | 2.8E+00  | 8.2E+01 | 2.1E+01               | 1.7E+01 | 1.9E+01  | 5.6E+02 | 1.8E+00                  | 1.4E+00 | 2.8E+01  | 8.2E+00 | 5.3E+00                     | 4.3E+00 | 1.9E+00  | 5.3E+00 | 4.3E+00                   | 1.9E+00 | 5.5E+01  | 5.5E+01 |
| Phenol  | 0                   | -                      | -       | 2.1E+04  | 4.6E+06 | --                    | -       | 7.6E+04  | 1.7E+07 | --                       | -       | 2.1E+03  | 4.6E+05 | --                          | -       | 7.6E+03  | 1.7E+06 | --                        | -       | 7.6E+03  | 1.7E+06 |
| Pyrene  | 0                   | -                      | -       | 9.6E+02  | 1.1E+04 | --                    | -       | 3.5E+03  | 4.0E+04 | --                       | -       | 9.6E+01  | 1.1E+03 | --                          | -       | 3.5E+02  | 4.0E+03 | --                        | -       | 3.5E+02  | 4.0E+03 |
| Radionuclides (pCi/L<br>except Beta/Photon)           | 0                   | -                      | -       | --       | --      | --                    | --      | --       | --      | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | --       | --      |
| Gross Alpha Activity<br>(mrem/yr)                     | 0                   | -                      | -       | 1.5E+01  | 1.5E+01 | --                    | -       | 5.4E+01  | 5.4E+01 | --                       | -       | 1.5E+00  | 1.5E+00 | --                          | -       | 5.4E+00  | 5.4E+00 | --                        | -       | 5.4E+00  | 5.4E+00 |
| Beta and Photon Activity                              | 0                   | -                      | -       | 4.0E+00  | 4.0E+00 | --                    | -       | 1.5E+01  | 1.5E+01 | --                       | -       | 4.0E+01  | 4.0E+01 | --                          | -       | 1.5E+00  | 1.5E+00 | --                        | -       | 1.5E+00  | 1.5E+00 |
| Stronium-90   | 0                   | -                      | -       | 8.0E+00  | 8.0E+00 | --                    | -       | 2.9E+01  | 2.9E+01 | --                       | -       | 8.0E+01  | 8.0E+01 | --                          | -       | 2.9E+00  | 2.9E+00 | --                        | -       | 2.9E+00  | 2.9E+00 |
| Tritium   | 0                   | -                      | -       | 2.0E+04  | 2.0E+04 | --                    | -       | 7.3E+04  | 7.3E+04 | --                       | -       | 2.0E+03  | 2.0E+03 | --                          | -       | 7.3E+03  | 7.3E+03 | --                        | -       | 7.3E+03  | 7.3E+03 |
| Selenium  | 0                   | 2.0E+01                | 5.0E+00 | 1.1E+02  | 6.0E+01 | 1.6E+01               | 4.0E+02 | 6.2E+02  | 5.0E+00 | 1.3E+00                  | 1.7E+01 | 1.1E+03  | 1.5E+01 | 3.9E+00                     | 6.2E+01 | 4.0E+03  | 1.5E+01 | 3.9E+00                   | 6.2E+01 | 4.0E+03  | 1.5E+01 |
| Silver  | 0                   | 8.0E+00                | -       | -        | 2.4E+01 | -                     | -       | -        | 2.0E+00 | -                        | -       | 2.0E+00  | -       | -                           | 6.0E+00 | -        | -       | 6.0E+00                   | -       | -        | -       |
| Sulfate   | 0                   | -                      | -       | 2.5E+05  | --      | -                     | -       | 9.1E+05  | --      | -                        | -       | 2.5E+04  | --      | -                           | -       | 9.1E+04  | --      | -                         | -       | 9.1E+04  | --      |
| 1,1,2,2-Tetrachloroethane <sup>f</sup>                | 0                   | -                      | -       | 1.7E+00  | 1.1E+02 | --                    | -       | 1.2E+01  | 7.6E+02 | --                       | -       | 1.7E+01  | 1.1E+01 | --                          | -       | 1.2E+00  | 7.6E+01 | --                        | -       | 1.2E+00  | 7.6E+01 |
| Tetrachloroethylene <sup>f</sup>                      | 0                   | -                      | -       | 8.0E+00  | 8.9E+01 | --                    | -       | 5.5E+01  | 6.1E+02 | --                       | -       | 8.0E+01  | 8.9E+00 | --                          | -       | 5.5E+00  | 6.1E+01 | --                        | -       | 5.5E+00  | 6.1E+01 |
| Thallium  | 0                   | -                      | -       | 1.7E+00  | 6.3E+00 | --                    | -       | 6.2E+00  | 2.3E+01 | --                       | -       | 1.7E+01  | 6.3E+01 | --                          | -       | 6.2E+01  | 2.3E+00 | --                        | -       | 6.2E+01  | 2.3E+00 |
| Toluene   | 0                   | -                      | -       | 6.8E+03  | 2.0E+05 | --                    | -       | 2.5E+04  | 7.3E+05 | --                       | -       | 6.8E+02  | 2.0E+04 | --                          | -       | 2.5E+03  | 7.3E+04 | --                        | -       | 2.5E+03  | 7.3E+04 |
| Total dissolved solids                                | 0                   | -                      | -       | 5.0E+05  | -       | -                     | -       | 1.8E+06  | -       | -                        | -       | 5.0E+04  | -       | -                           | -       | 1.8E+05  | -       | -                         | -       | 1.8E+05  | -       |
| Toxphene c  | 0                   | 7.3E+01                | 2.0E+04 | 7.3E+03  | 7.5E+03 | 2.2E+00               | 6.3E+04 | 5.0E+02  | 5.2E+02 | 1.8E+01                  | 5.0E+05 | 7.3E+04  | 7.5E+04 | 5.5E+01                     | 1.6E+04 | 5.0E+03  | 5.2E+03 | 1.6E+04                   | 5.0E+03 | 5.2E+03  | 1.6E+04 |
| Tributyltin   | 0                   | 4.6E+01                | 6.3E+02 | --       | --      | 1.4E+00               | 2.0E+01 | --       | --      | 1.2E+01                  | 1.6E+02 | --       | --      | 3.5E+01                     | 4.9E+02 | --       | --      | 3.5E+01                   | 4.9E+02 | --       | --      |
| 1,2,4-Trichlorobenzene                                | 0                   | -                      | -       | 2.6E+02  | 9.4E+02 | --                    | -       | 9.4E+02  | 3.4E+03 | --                       | -       | 2.6E+01  | 9.4E+01 | --                          | -       | 9.4E+01  | 3.4E+02 | --                        | -       | 9.4E+01  | 3.4E+02 |
| 1,1,2-Trichloroethane <sup>f</sup>                    | 0                   | -                      | -       | 6.0E+00  | 4.2E+02 | --                    | -       | 4.1E+01  | 2.9E+03 | --                       | -       | 6.0E+01  | 4.2E+01 | --                          | -       | 4.1E+00  | 2.9E+02 | --                        | -       | 4.1E+00  | 2.9E+02 |
| Trichloroethylene c                                   | 0                   | -                      | -       | 2.7E+01  | 8.1E+02 | --                    | -       | 1.9E+02  | 5.6E+03 | --                       | -       | 2.7E+00  | 8.1E+01 | --                          | -       | 1.9E+01  | 5.6E+02 | --                        | -       | 1.9E+01  | 5.6E+02 |
| 2,4,6-Trichlorophenol c                               | 0                   | -                      | -       | 2.1E+01  | 6.5E+01 | --                    | -       | 1.4E+02  | 4.5E+02 | --                       | -       | 2.1E+00  | 6.5E+00 | --                          | -       | 1.4E+01  | 4.5E+01 | --                        | -       | 1.4E+01  | 4.5E+01 |
| 2-(2,4,5-Trichlorophenoxy)<br>propionic acid (Silvex) | 0                   | -                      | -       | 5.0E+01  | -       | -                     | -       | 1.8E+02  | -       | -                        | -       | 5.0E+00  | --      | -                           | -       | 1.8E+01  | --      | -                         | -       | 1.8E+01  | --      |
| Vinyl Chloride <sup>f</sup>                           | 0                   | -                      | -       | 2.3E+01  | 6.1E+01 | --                    | -       | 1.6E+00  | 4.2E+02 | --                       | -       | 2.3E+02  | 6.1E+00 | --                          | -       | 1.6E+01  | 4.2E+01 | --                        | -       | 1.6E+01  | 4.2E+01 |
| Zinc  | 2.2                 | 1.8E+02                | 1.8E+02 | 9.1E+03  | 6.9E+04 | 5.3E+02               | 5.5E+02 | 3.3E+04  | 2.5E+05 | 4.6E+01                  | 4.6E+01 | 9.1E+02  | 6.9E+03 | 1.3E+02                     | 1.4E+02 | 3.3E+03  | 2.5E+04 | 1.3E+02                   | 1.4E+02 | 3.3E+03  | 2.5E+04 |

## Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise

2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipal

3. Metals measured as Dissolved, unless specified otherwise

4. "C" indicates a carcinogenic parameter

5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.

Antidegradation WLAs are based upon a complete mix.

6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic

= (0.1(WQC - background conc.) + background conc.) for human health

7. WLAs established at the following stream flows: 1Q10 for Acute, 3Q10 for Chronic Ammonia, 3Q05 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Note: do not use QL's lower than the minimum QL's provided in agency guidance

| Metal        | Target Value (SSTV) |
|--------------|---------------------|
| Antimony     | 5.9E+00             |
| Arsenic      | 3.9E+00             |
| Barium       | 7.6E+02             |
| Cadmium      | 7.8E-01             |
| Chromium III | 5.2E+01             |
| Chromium VI  | 4.8E+00             |
| Copper       | 6.4E+00             |
| Iron         | 1.1E+02             |
| Lead         | 5.4E+00             |
| Manganese    | 3.1E+01             |
| Mercury      | 1.8E-02             |
| Nickel       | 1.4E+01             |
| Selenium     | 2.3E+00             |
| Silver       | 2.4E+00             |
| Zinc         | 5.3E+01             |

## **RECEIVING STREAM BACKGROUND DATA**

|                      |                  |
|----------------------|------------------|
| Station_ID           | 4AGSF002.60      |
| Station_Description  | Rt 897 Bridge    |
| Stream_Name          | GOOSE CREEK S.F. |
| Collection_Date_Time | 6/25/02 10:00 AM |

| Parameter_Name             | Value |
|----------------------------|-------|
| Field_pH                   | 7.8   |
| DO_Probe                   | 8.4   |
| Temp_Celsuis               | 21.3  |
| Specific_Conductance       | 290   |
| CAL HARD CA MG MG/L        | 172   |
| T ORG C C MG/L             | <2    |
| CALCIUM CA,DISS MG/L       | 41    |
| MGNSIUM MG,DISS MG/L       | 17    |
| ARSENIC AS,DISS UG/L       | 0.45  |
| BARIUM BA,DISS UG/L        | 52    |
| BERYLIUMBE,DISS UG/L       | <0.1  |
| CADMIUM CD,DISS UG/L       | <0.1  |
| CHROMIUMCR,DISS UG/L       | 0.13  |
| COPPER CU,DISS UG/L        | 0.22  |
| IRON FE,DISS UG/L          | <100  |
| LEAD PB,DISS UG/L          | <0.1  |
| MANGNESEMN,DISS UG/L       | 20    |
| THALLIUMTL,DISS UG/L       | <0.2  |
| NICKEL NI,DISS UG/L        | 0.38  |
| SILVER AG,DISS UG/L        | <0.1  |
| ZINC ZN,DISS UG/L          | 2.2   |
| ANTIMONYSB,DISS UG/L       | 0.12  |
| ALUMINUM AL,DISS UG/L      | 1.25  |
| SELENIUMSE,DISS UG/L       | <0.5  |
| MERCURY-TL,FILTERED WATER, | 3.61  |
| RESIDUE DISS-105C MG/L     | 223   |
| RESIDUE TOT NFLT MG/L      | <3    |
| RESIDUE VOL NFLT MG/L      | <3    |
| RESIDUE FIX NFLT MG/L      | <3    |

Station ID: 4AGSF002.16  
 Rt. 607 BR. Below Fuel Storage, Montvale

| Collection Date Time | Temp Celsius | Field pH | Hardness |
|----------------------|--------------|----------|----------|
| 06/08/88             | 17.8         | 8.3      | 156      |
| 05/02/88             | 11.9         | 7.3      | 120      |
| 03/02/88             | 7.5          | 8        | 140      |
| 01/05/88             | 4.1          | 8.5      | 156      |
| 12/02/87             | 6.2          | 9        | 132      |
| 11/04/87             | 15.3         | 8.4      | 135      |
| 10/01/87             | 13.8         | 7.6      | 158      |
| 09/01/87             | 18.4         | 7.8      | 172      |
| 08/03/87             | 20.5         | 7.8      | 150      |
| 07/20/87             | 19.3         | 7.9      | 134      |
| 06/02/87             | 19.5         | 7.78     | 98       |
| 05/05/87             | 11.5         | 7.73     | 137      |
| 04/08/87             | 8.1          | 7.3      | 108      |
| 03/10/87             | 5            | 7        | 112      |
| 02/05/87             | 3.2          | 6.9      | 112      |
| 01/15/87             | 6.5          | 7.5      | 162      |
| 12/10/86             | 9.7          | 7.2      | 185      |
| 11/13/86             | 8.8          | 7.9      | 162      |
| 10/14/86             | 15.8         | 7.2      | 134      |
| 10/14/86             | 15.8         | 7.2      |          |
| 09/02/86             | 16.2         | 7.6      | 180      |
| 08/04/86             | 23           | 8.2      | 170      |
| 07/02/86             | 20.8         | 8.1      | 154      |
| 06/16/86             | 18.5         | 7.8      | 147      |
| 05/15/86             | 13           | 7.6      | 146      |
| 04/03/86             | 11.3         | 7.6      |          |
| 03/05/86             | 3.8          | 7.6      |          |
| 02/05/86             |              | 7.8      |          |
| 01/13/86             | 2.7          | 7.7      |          |
| 12/11/85             | 5.5          | 7.5      |          |
| 11/19/85             | 14           | 7.15     |          |
| 10/15/85             | 19.3         | 8.1      |          |
| 09/12/85             | 16.1         | 7.2      |          |
| 08/05/85             | 20           | 8.2      |          |
| 07/11/85             | 17           | 7.2      |          |
| 06/17/85             | 20           | 7.9      |          |
| 05/13/85             | 14.8         | 7.5      |          |
| 04/08/85             | 6            | 7.9      |          |
| 03/13/85             | 10.8         | 7.9      |          |
| 02/14/85             | 0            | 7.3      |          |
| 01/16/85             | 1            | 6.7      |          |
| 10/31/84             | 14.7         | 7.4      |          |
| 09/04/84             | 18           | 7.5      |          |
| 08/13/84             | 19           | 6.6      |          |
| 07/23/84             | 18           | 6.9      |          |
| 06/14/84             | 19.3         | 7.1      |          |
| 05/16/84             | 11           | 7.4      |          |
| 04/12/84             | 8.8          | 7        |          |
| 03/05/84             | 5.2          | 7.4      |          |
| 02/16/84             | 7            | 7.4      |          |
| 01/31/84             | 2.5          | 7.8      |          |
| 12/08/83             | 5            | 6.9      |          |
| 11/14/83             | 5            | 7.2      |          |
| 10/13/83             | 17.8         | 6.8      |          |

90th %ile Temp= 20.1  
 10th %ile pH = 7.2  
 90th %ile pH = 8.8  
 Ave Hardness 144.2

| Collection Date Time | Temp Celsius | Field pH |
|----------------------|--------------|----------|
| 09/15/83             | 14.8         | 7.4      |
| 08/08/83             | 21.2         | 8        |
| 07/19/83             | 20           | 7.6      |
| 06/02/83             | 18           | 8        |
| 05/23/83             | 19.5         | 7.47     |
| 05/20/83             | 7.5          | 7.5      |
| 03/09/83             | 9            | 7.2      |
| 02/09/83             | 2.5          | 6.8      |
| 01/10/83             | 6.2          | 8.2      |
| 12/13/82             | 3            | 7.7      |
| 11/22/82             | 12           | 8.8      |
| 10/14/82             | 15.1         | 7.9      |
| 09/07/82             | 15.8         | 8.7      |
| 08/11/82             | 23.2         | 7.8      |
| 07/13/82             | 20.2         | 8.2      |
| 06/29/82             | 19           | 8        |
| 05/18/82             | 17.2         | 8.7      |
| 04/13/82             | 12.2         | 7.8      |
| 03/10/82             | 5.7          | 7.7      |
| 02/01/82             | 6            | 8.2      |
| 01/25/82             | 1.2          | 8.5      |
| 12/15/81             | 6            | 7.7      |
| 11/13/81             | 8.1          | 8.7      |
| 10/27/81             | 14           | 7.2      |
| 09/14/81             | 18.8         | 8.8      |
| 08/20/81             | 19           | 8        |
| 07/06/81             | 19.3         | 7.7      |
| 06/26/81             | 20.1         | 7.8      |
| 05/11/81             | 14           | 8.8      |
| 04/02/81             | 13.3         | 8        |
| 03/09/81             | 8            | 9.2      |
| 02/11/81             | 5.5          | 8.7      |
| 01/15/81             | 4.8          | 8.5      |
| 12/08/80             | 10           | 8.5      |
| 11/12/80             | 7.2          | 7.7      |
| 10/14/80             | 9            | 8        |
| 07/14/80             | 20           | 7.25     |
| 06/12/80             | 16.3         | 8.2      |
| 05/08/80             | 14.2         | 8.3      |
| 04/10/80             | 11.5         | 7.8      |
| 03/24/80             | 8            | 7        |
| 02/14/80             | 7            | 7        |
| 01/14/80             | 7            | 6.8      |
| 12/10/79             | 8            | 8.7      |
| 11/08/79             | 9.5          | 7.2      |
| 10/22/79             | 21           | 8.5      |
| 09/17/79             | 18           | 8.8      |
| 08/13/79             | 18           | 8        |
| 07/10/79             | 18           | 7.8      |
| 06/11/79             | 17           | 8.5      |
| 05/07/79             | 6            | 8.8      |
| 04/18/79             | 11           | 8.8      |
| 03/07/79             | 10           | 7.5      |
| 01/31/79             | 4            | 7.2      |

| Collection Date Time | Temp Celsius | Field pH |
|----------------------|--------------|----------|
| 01/16/79             | 4            | 8        |
| 11/01/78             | 13           | 8.8      |
| 10/30/78             | 11           | 8.8      |
| 09/07/78             | 2.2          | 8.7      |
| 08/23/78             | 20           | 9        |
| 06/30/78             | 25           | 8.7      |
| 06/26/78             | 18           | 8.4      |
| 05/22/78             | 15           | 8.5      |
| 04/13/78             | 15           | 9.2      |
| 03/01/78             | 6            | 8.8      |
| 02/07/78             | 0.1          |          |
| 11/30/77             | 0.5          | 8.8      |
| 11/16/77             | 13           | 9.3      |
| 10/04/77             | 13           | 9.7      |
| 09/09/77             | 1.7          | 8.7      |
| 08/10/77             | 24           | 9        |
| 07/12/77             | 25           | 9        |
| 06/06/77             | 20.19        | 8.7      |
| 05/06/77             | 19           | 8.8      |
| 04/20/77             | 18           | 9        |
| 03/29/77             | 15           | 8.8      |
| 11/16/76             | 7.78         | 8.7      |
| 10/22/76             | 8.89         | 7.2      |
| 09/07/76             | 16.67        | 8.8      |
| 08/20/76             | 18.33        | 7.5      |
| 07/12/76             | 23.33        | 8.8      |
| 06/07/76             | 17.78        | 7.5      |
| 05/18/76             | 15.56        | 7.5      |
| 03/22/76             | 7.78         | 7.5      |
| 12/22/75             | 1.11         | 6.7      |
| 11/03/75             | 13.89        | 8.7      |
| 10/23/75             | 14.44        | 7.7      |
| 09/24/75             | 17.78        | 7.5      |
| 08/04/75             | 21.11        | 8.4      |
| 07/17/75             | 21.11        | 8.5      |
| 06/25/75             | 22.22        | 8.5      |
| 05/06/75             | 14.44        | 10       |
| 04/28/75             | 13.33        | 7.7      |
| 03/05/75             | 8.89         | 8        |
| 02/10/75             | 3.33         | 7.7      |
| 01/13/75             | 6.11         | 7.3      |
| 12/03/74             | 6.67         | 7.8      |
| 11/15/74             | 7.78         | 7.2      |

**MIX.EXE OUTPUT**

## Mixing Zone Predictions for

BP Products NA - Montvale

Effluent Flow = 0.0102 MGD

Stream 7Q10 = 0.51 MGD

Stream 30Q10 = 0.56 MGD

Stream 1Q10 = 0.48 MGD

Stream slope = 0.001 ft/ft

Stream width = 10 ft

Bottom scale = 3

Channel scale = 1

---

### Mixing Zone Predictions @ 7Q10

Depth = .3777 ft

Length = 204.76 ft

Velocity = .2132 ft/sec

Residence Time = .0111 days

#### Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

---

### Mixing Zone Predictions @ 30Q10

Depth = .3997 ft

Length = 194.78 ft

Velocity = .2208 ft/sec

Residence Time = .0102 days

#### Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

---

### Mixing Zone Predictions @ 1Q10

Depth = .3641 ft

Length = 211.47 ft

Velocity = .2084 ft/sec

Residence Time = .2819 hours

#### Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

---

## **EFFLUENT DATA**

**BP Products NA - Montvale Terminal**  
**VPDES Permit #VA0054577**

**BMP (Part I.B.7) Data**

| Date              | Tolune | Xylene | TOC  |
|-------------------|--------|--------|------|
| Decision Criteria | 3500   | 1480   | 110  |
| 5/1/2004          | 3.3    | 9.1    | 19   |
| 11/4/2005         | 1120   | 1334.3 | 1.21 |
| 5/4/2005          | 337    | 1357   | 17.1 |
| 11/16/2005        | 7833   | 3667   | 8.1  |
| 12/22/2005        | <2     | <2     | NA   |
| 4/27/2006         | 21.4   | 59.7   | 10.8 |
| 9/5/2006          | <5     | <5     | 1.55 |
| 6/6/2007          | <1     | <6     | 1.63 |
| 9/13/2007         | <10    | <30    | 3.93 |

**Attachment A (Part I.B.8) Data**

| Pollutant    | 2/21/2007 |          | 9/7/2007 |          |
|--------------|-----------|----------|----------|----------|
|              | 001 (µg)  | 003 (µg) | 001 (µg) | 003 (µg) |
| Barium       | 16        | 24       | 17       | 43       |
| Lead         | <2        | <2       | <10      | <10      |
| Zinc         | <10       | <10      | <10      | <10      |
| Endosulfan   | <1        | -        | <0.1     | -        |
| Naphthalene  | <6        | <6       | <6       | <5       |
| Benzene      | <1        | <1       | <10      | <1       |
| Ethylbenzene | <1        | <1       | <10      | <1       |
| Toluene      | <1        | <1       | <10      | <1       |
| Hardness     | 55600     | 48900    | 53000    | 84500    |
| Xylenes      | <6        | <6       | <6       | <3       |

| Outfall No | Due Date    | pH   |
|------------|-------------|------|
| 001        | 10-Dec-2003 | 8.88 |
| 001        | 10-Jan-2004 | 5.81 |
| 001        | 10-Mar-2004 | 6.43 |
| 001        | 10-May-2004 | 6.88 |
| 001        | 10-Jul-2004 | 8.15 |
| 001        | 10-Sep-2004 | 6.32 |
| 001        | 10-Oct-2004 | 7.1  |
| 001        | 10-Nov-2004 | 7.31 |
| 001        | 10-Dec-2004 | 8.43 |
| 001        | 10-Jan-2005 | 8.18 |
| 001        | 10-Feb-2005 | 7.24 |
| 001        | 10-Apr-2005 | 6.17 |
| 001        | 10-May-2005 | 7.71 |
| 001        | 10-Aug-2005 | 7.8  |
| 001        | 10-Nov-2005 | 6.36 |
| 001        | 10-Jan-2006 | 7.06 |
| 001        | 10-Feb-2006 | 6.19 |
| 001        | 10-Mar-2006 | 7.41 |
| 001        | 10-May-2006 | 7.33 |
| 001        | 10-Jul-2006 | 6.35 |
| 001        | 10-Oct-2006 | 7.72 |
| 001        | 10-Nov-2006 | 6.82 |
| 001        | 10-Dec-2006 | 8.33 |
| 001        | 10-Jan-2007 | 8.15 |
| 001        | 10-Mar-2007 | 8.76 |
| 001        | 10-Apr-2007 | 7.88 |
| 001        | 10-May-2007 | 8.11 |
| 001        | 10-Jul-2007 | 8.32 |
| 001        | 10-Oct-2007 | 8.87 |
| 001        | 10-Nov-2007 | 8.61 |
| 001        | 10-Jan-2008 | 7.63 |
| 001        | 10-Mar-2008 | 9.93 |
| 001        | 10-Apr-2008 | 7.79 |
| 001        | 10-May-2008 | 6.88 |
| 001        | 10-Jun-2008 | 7.87 |
| 001        | 10-Jul-2008 | 7.93 |
| 001        | 10-Aug-2008 | 8.09 |

| Outfall No | Due Date    | pH   |
|------------|-------------|------|
| 003        | 10-Dec-2003 | 8.58 |
| 003        | 10-Jan-2004 | 6.16 |
| 003        | 10-Mar-2004 | 6.09 |
| 003        | 10-May-2004 | 7.01 |
| 003        | 10-Jul-2004 | 7.55 |
| 003        | 10-Sep-2004 | 6.06 |
| 003        | 10-Oct-2004 | 6.74 |
| 003        | 10-Nov-2004 | 6.45 |
| 003        | 10-Dec-2004 | 8.21 |
| 003        | 10-Jan-2005 | 7.52 |
| 003        | 10-Feb-2005 | 6.5  |
| 003        | 10-Apr-2005 | 6.23 |
| 003        | 10-May-2005 | 6.83 |
| 003        | 10-Aug-2005 | 6.28 |
| 003        | 10-Nov-2005 | 6.74 |
| 003        | 10-Jan-2006 | 7.06 |
| 003        | 10-Feb-2006 | 6.31 |
| 003        | 10-Mar-2006 | 6.97 |
| 003        | 10-May-2006 | 7.34 |
| 003        | 10-Jul-2006 | 6.13 |
| 003        | 10-Oct-2006 | 8.2  |
| 003        | 10-Nov-2006 | 6.64 |
| 003        | 10-Dec-2006 | 7.33 |
| 003        | 10-Jan-2007 | 8.76 |
| 003        | 10-Mar-2007 | 7.95 |
| 003        | 10-Apr-2007 | 7.2  |
| 003        | 10-May-2007 | 7.98 |
| 003        | 10-Jul-2007 | 8.05 |
| 003        | 10-Oct-2007 | 6.97 |
| 003        | 10-Nov-2007 | 8.31 |
| 003        | 10-Jan-2008 | 6.85 |
| 003        | 10-Mar-2008 | 8.87 |
| 003        | 10-Apr-2008 | 6.89 |
| 003        | 10-May-2008 | 7.81 |
| 003        | 10-Jun-2008 | 7.77 |
| 003        | 10-Aug-2008 | 7.92 |

|     |               |      |
|-----|---------------|------|
| 001 | 10th %'ile pH | 6.34 |
| 001 | 90th %'ile pH | 8.67 |
| 003 | 10th %'ile pH | 6.20 |
| 003 | 90th %'ile pH | 8.26 |

## **ATTACHEMENT C**

- ◆ Toxics Management Program Justification

## MEMORANDUM

### VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY WEST CENTRAL REGIONAL OFFICE

3019 Peters Creek Road

Roanoke, VA 24019

SUBJECT: TMP Justification for Permit Reissuance BP Products North America - Montvale Terminal  
VPDES Permit #VA0055457

TO: Permit File

FROM: Kevin Harlow, WCRO

DATE: September 2, 2008

#### **General Information**

This facility is a petroleum products distribution center. Petroleum products are piped to the center, stored in large above ground tanks and loaded to truck transports for distribution to retailers. There are no maintenance or other activities onsite. This discharge is comprised of potentially contaminated stormwater from the loading rack area (101), the BP tank dike area (102), and the Citgo tank dike area (003). 101 is treated through an oil/water separator prior to discharge to the South Fork of Goose Creek. The stormwater that collects in the dike areas that discharge through 102 and 003 is visually inspected for sheen and TSS prior to discharge to the South Fork of Goose Creek.

NOTE: 102 used to discharge to a dry ditch prior to entering the receiving stream and was known as outfall 002. 101 was known as 001. During the 1998 permit cycle, the permittee rerouted outfall 002 so that it joins the outfall pipe from old 001 at a manhole and they now both discharge at the same location as old 001. All of the biological data available are for the two independent outfalls. In order to assess a worst case scenario for the receiving stream, the need for TMP requirements on outfall 001 was evaluated on the *two internal outfalls independently* rather than compositing the information. If the permittee makes modifications to the outfall so that 101 and 102 are truly mixed prior to discharge, the WET limit and TMP requirements would have to be reevaluated.

#### **Recommendations - Biological Testing**

The recommendations and standard permit language from guidance memorandum GM00-2012, Toxics Management Program Implementation Guidance, is used to develop permit conditions and evaluate submitted data. Bulk storage facilities are specifically listed in GM00-2012 as an industrial classification that has the potential for toxicity of instream impact. In fact, there is currently an acute WET limit for the loading rack discharges. Also, there were multiple instances of less than 100% survival in 100% effluent at Outfalls 102 and 003 (bermed areas). Due to these reasons the annual testing requirements at 102 and 003 will be continued.

#### **Outfall 001**

Internal Outfall 101: This outfall met the permit limit of 3.98 TU<sub>a</sub> each time tested. Because the discharge is all stormwater, only an acute limit is valid. Ceriodaphnia dubia will be used for the WET limit testing. Samples are to be collected semi-annually only when outfall 101 is discharging.

Internal Outfall 102: As old outfall 002, this outfall passed all annual monitoring using C. dubia in the 2003-2008 permit cycle. Ceriodaphnia dubia will be designated as the species for continued annual testing.

**Outfall 003:** This outfall passed all annual tests using C. dubia in the 2003-2008 permit cycle. Ceriodaphnia dubia will be designated as the species for continued annual monitoring.

| OUT FALL | EVENT      | DATE BEGIN | DATE END  | LC50 (%) | TUa | SURV. IN 100% |
|----------|------------|------------|-----------|----------|-----|---------------|
| 003      | 1st Annual | 2/1/2004   | 2/1/2004  | >100     | <1  | 95            |
| 003      | 1st Annual | 3/9/2005   | 3/11/2005 | >100     | <1  | 100           |
| 003      | 2nd Annual | 2/7/2006   | 2/9/2006  | >100     | <1  | 90            |
| 003      | 3rd Annual | 2/21/2007  | 2/23/2007 | >100     | <1  | 100           |
| 102      | 1st Annual | 2/1/2004   | 2/1/2004  | >100     | <1  | 90            |
| 102      | 1st Annual | 3/9/2005   | 3/11/2005 | >100     | <1  | 100           |
| 102      | 2nd Annual | 2/7/2006   | 2/9/2006  | >100     | <1  | 100           |
| 102      | 3rd Annual | 2/21/2007  | 2/23/2007 | >100     | <1  | 100           |

## **ATTACHMENT D**

- ◆ NPDES Rating Worksheet

## ***NPDES Permit Rating Work Sheet***

NPDES NO: VA0054577

**Facility Name:**

BPProdctsNAMontvaIeTermina

City: L\_M\_o\_n\_t\_a\_n\_a

Receiving Water: L\_S\_ . \_ | F\_o\_r\_k\_| \_ G\_o\_o\_s\_e\_| \_ C\_r\_e\_e\_k\_| \_ U\_I\_T|

Reach Number: VAW-L20R

- Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?**

  1. Power output 500 MW or greater (not using a cooling pond/lake)
  2. A nuclear power plant
  3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

**Is this permit for a municipal separate storm sewer serving a population greater than 100,000?**

YES; score is 700 (stop here)  
 NO (continue)

\_x\_ No (continue)

YES: score is 600 (stop here)    x NO (continue)

## **FACTOR 1: Toxic Pollutant Potential**

PCS SIC Code:            Primary SIC Code: 5171

Other SIC Codes: \_\_\_\_\_

Industrial Subcategory Code:   \_0\_  \_0\_  \_0\_   (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one

| Toxicity Group           | Code | Points | Toxicity Group | Code | Points | Toxicity Group | Code | Points |
|--------------------------|------|--------|----------------|------|--------|----------------|------|--------|
| No process waste streams | 0    | 0      | 3.             | 3    | 15     | 7.             | 7    | 35     |
| 1.                       | 1    | 5      | 4.             | 4    | 20     | 8.             | 8    | 40     |
| 2.                       | 2    | 10     | 5.             | 5    | 25     | 9.             | 9    | 45     |
|                          |      |        | 6.             | 6    | 30     | 10.            | 10   | 50     |

**Code Number Checked:** 081

Total Points Factor 1: 401

**FACTOR 2: Flow/Stream Flow Volume** (*Complete Either Section A or Section B; check only one*)

## Section A--Wastewater Flow Only Considered

## Section B--Wastewater and Stream Flow Considered

| Wastewater Type<br>(See Instructions) | Code   | Points | Wastewater Type<br>(See Instructions) | Percent of Instream<br>Wastewater Concentra-<br>tion at Receiving<br>Stream Low Flow | Code                           | Points             |
|---------------------------------------|--|--------|---------------------------------------|--|--------------------------------|--------------------|
| Type I:                               | Flow < 5 MGD<br>Flow 5 to 10 MGD<br>Flow > 10 to 50 MGD<br>Flow > 50 MGD | 11     | 0                                     | Type I/III:<br><br><br><br>  | < 10%<br><br><br><br>          | 41<br><br><br><br> |
|                                       |  | 12     | 10                                    |  |                                |                    |
|                                       |  | 13     | 20                                    |  |                                |                    |
|                                       |  | 14     | 30                                    |  |                                |                    |
| Type II:                              | Flow < 1 MGD<br>Flow 1 to 5 MGD<br>Flow > 5 to 10 MGD<br>Flow > 10 MGD   | 21     | 10                                    | Type II:<br><br><br><br>   | ≥ 10% to < 50%<br><br><br><br> | 42<br><br><br><br> |
|                                       |  | 22     | 20                                    |  |                                |                    |
|                                       |  | 23     | 30                                    |  |                                |                    |
|                                       |  | 24     | 50                                    |  |                                |                    |
| Type III:                             | Flow < 1 MGD<br>Flow 1 to 5 MGD<br>Flow > 5 to 10 MGD<br>Flow > 10 MGD   | 31     | 0                                     | Type III:<br><br><br><br>  | <10%<br><br><br><br>           | 51<br><br><br><br> |
|                                       |  | 32     | 10                                    |  |                                |                    |
|                                       |  | 33     | 20                                    |  |                                |                    |
|                                       |  | 34     | 30                                    |  |                                |                    |

**Code Checked from Section A or B:**

Total Points Factor 2:

**FACTOR 3: Conventional Pollutants**

(only when limited by the permit)

|  |                              |                              |  |
|--|------------------------------|------------------------------|--|
| A. Oxygen Demanding Pollutant: (check one) | <input type="checkbox"/> BOD | <input type="checkbox"/> COD | <input type="checkbox"/> Other: <u>TOC</u> |
| Permit Limits: (check one)                 | <u>X</u>                     | < 100 lbs/day                | Code <u>TOC</u><br>Points<br>1 0           |
|  | <u>  </u>                    | 100 to 1000 lbs/day          | 2 5  |
|  | <u>  </u>                    | >1000 to 3000 lbs/day        | 3 15                                       |
|  | <u>  </u>                    | >3000 lbs/day                | 4 20                                       |

Code Checked: 1Points Scored: 0

## B. Total Suspended Solids (TSS)

| Permit Limits: (check one) | <u>X</u>  | Code | Points |
|----------------------------|-----------|------|--------|
|                            | <u>  </u> | 1    | 0      |
|                            | <u>  </u> | 2    | 5      |
|                            | <u>  </u> | 3    | 15     |
|                            | <u>  </u> | 4    | 20     |

Code Checked: 1Points Scored: 0C. Nitrogen Pollutant: (check one)  Ammonia  Other: NA

| Permit Limits: (check one) | <u>X</u>  | Code | Points |
|----------------------------|-----------|------|--------|
|                            | <u>  </u> | 1    | 0      |
|                            | <u>  </u> | 2    | 5      |
|                            | <u>  </u> | 3    | 15     |
|                            | <u>  </u> | 4    | 20     |

Code Checked: 1Points Scored: 0Total Points Factor 3: 0**FACTOR 4: Public Health Impact**

*Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.*

X YES (if yes, check toxicity potential number below) (Town of Altavista)  
   NO (if no, go to Factor 5)

Determine the human health toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column -- check one below)

| Toxicity Group                     | Code | Points | Toxicity Group | Code | Points | Toxicity Group | Code | Points |
|------------------------------------|------|--------|----------------|------|--------|----------------|------|--------|
| <u>  </u> No process waste streams | 0    | 0      | <u>  </u> 3.   | 3    | 0      | <u>  </u> 7.   | 7    | 15     |
| <u>  </u> 1.                       | 1    | 0      | <u>  </u> 4.   | 4    | 0      | <u>  </u> 8.   | 8    | 20     |
| <u>  </u> 2.                       | 2    | 0      | <u>  </u> 5.   | 5    | 5      | <u>  </u> 9.   | 9    | 25     |
|                                    |      |        | <u>  </u> 6.   | 6    | 10     | <u>  </u> 10.  | 10   | 30     |

Code Number Checked: 0Total Points Factor 4: 2

# NPDES Permit Rating Work Sheet

NPDES No.: \_V\_A\_0\_0\_5\_4\_5\_7\_7\_

## FACTOR 5: Water Quality Factors

- A. Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?**

|  | Code | Points |
|--|------|--------|
| <input type="checkbox"/> Yes           | 1    | 10     |
| <input checked="" type="checkbox"/> No | 2    | 0      |

- B. Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?**

|   | Code | Points |
|---|------|--------|
| <input checked="" type="checkbox"/> Yes | 1    | 0      |
| <input type="checkbox"/> No             | 2    | 5      |

- C. Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole fat toxicity?**

|   | Code | Points |
|---|------|--------|
| <input checked="" type="checkbox"/> Yes | 1    | 10     |
| <input type="checkbox"/> No             | 2    | 0      |

Code Number Checked: A \_2\_      B \_1\_      C \_1\_

Points Factor 5: A \_0\_0\_ + B \_0\_ + C \_10\_ = \_1\_0\_ TOTAL

## FACTOR 6: Proximity to Near Coastal Waters N/A

- A. Base Score: Enter flow code here (from Factor 2): \_**

*Enter the multiplication factor that corresponds to the flow code: \_*

Check appropriate facility HPRI Code (from PCS):

| HPRI #    | Code | HPRI Score | Flow Code                              | Multiplication Factor        |
|-----------|------|------------|--|------------------------------|
| <u>  </u> | 1    | 20         | 11, 31, or 41                          | 0.00                         |
| <u>  </u> | 2    | 0          | 12, 32, or 42                          | 0.05                         |
| <u>  </u> | 3    | 30         | 13, 33, or 43                          | 0.10                         |
| <u>  </u> | 4    | 0          | 14 or 34                               | 0.15                         |
| <u>  </u> | 5    | 20         | 21 or 51<br>22 or 52<br>23 or 53<br>24 | 0.10<br>0.30<br>0.60<br>1.00 |

HPRI code checked: \_

Base Score: (HPRI Score) \_ x (Multiplication Factor) \_ = \_0\_ (TOTAL POINTS)

- B. Additional Points--NEP Program**

*For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?*

N/A

|                              | Code | Points |
|------------------------------|------|--------|
| <input type="checkbox"/> Yes | 1    | 10     |
| <input type="checkbox"/> No  | 2    | 0      |

- C. Additional Points--Great Lakes Area of Concern**

*For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)*

N/A

|                              | Code | Points |
|------------------------------|------|--------|
| <input type="checkbox"/> Yes | 1    | 10     |
| <input type="checkbox"/> No  | 2    | 0      |

Code Number Checked: A \_N/A\_      B \_N/A\_      C \_N/A\_

Points Factor 5: A \_ + B \_ + C \_ = \_0\_ TOTAL

# NPDES Permit Rating Work Sheet

NPDES No.: V\_A\_0\_0\_5\_4\_5\_7\_7

## FACTOR 5: Water Quality Factors

- A. Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?

|     | Code | Points |
|-----|------|--------|
| Yes | 1    | 10     |
| No  | 2    | 0      |

- B. Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?

|     | Code | Points |
|-----|------|--------|
| Yes | 1    | 0      |
| No  | 2    | 5      |

- C. Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?

|     | Code | Points |
|-----|------|--------|
| Yes | 1    | 10     |
| No  | 2    | 0      |

Code Number Checked: A |2|      B |1|      C |1|  
 Points Factor 5: A |0|0| + B |0| + C |10| = |1|0| TOTAL

## FACTOR 6: Proximity to Near Coastal Waters N/A

- A. Base Score: Enter flow code here (from Factor 2): |\_\_\_\_|

Enter the multiplication factor that corresponds to the flow code: |\_\_\_\_|

Check appropriate facility HPRI Code (from PCS):

| HPRI # | Code | HPRI Score | Flow Code                                    | Multiplication Factor        |
|--------|------|------------|--|------------------------------|
| —      | 1    | 20         | 11, 31, or 41                                | 0.00                         |
| —      | 2    | 0          | 12, 32, or 42                                | 0.05                         |
| —      | 3    | 30         | 13, 33, or 43                                | 0.10                         |
| —      | 4    | 0          | 14 or 34<br>21 or 51<br>22 or 52<br>23 or 53 | 0.15<br>0.10<br>0.30<br>0.60 |
| —      | 5    | 20         | 24   | 1.00                         |

HPRI code checked: |\_\_\_\_|

Base Score: (HPRI Score) \_\_\_\_\_ x (Multiplication Factor) \_\_\_\_\_ = \_\_\_\_\_ 0 \_\_\_\_\_ (TOTAL POINTS)

- B. Additional Points--NEP Program

For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

N/A

|     | Code | Points |
|-----|------|--------|
| Yes | 1    | 10     |
| No  | 2    | 0      |

- C. Additional Points--Great Lakes Area of Concern

For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)

N/A

|     | Code | Points |
|-----|------|--------|
| Yes | 1    | 10     |
| No  | 2    | 0      |

Code Number Checked: A |N/A|      B |N/A|      C |N/A|  
 Points Factor 5: A |\_\_\_\_| + B |\_\_\_\_| + C |\_\_\_\_| = |\_\_\_\_| 0 |\_\_\_\_| TOTAL

## **NPDES Permit Rating Work Sheet**

NPDES NO: L\_V\_L\_A\_L\_0\_L\_0\_L\_5\_L\_4\_L\_5\_L\_7\_L\_7\_L

### **SCORE SUMMARY**

| Factor                     | Description                      | Total Points |
|----------------------------|----------------------------------|--------------|
| 1                          | Toxic Pollutant Potential        | <u>40</u>    |
| 2                          | Flow/Stream Flow Volume          | <u>00</u>    |
| 3                          | Conventional Pollutants          | <u>00</u>    |
| 4                          | Public Health Impacts            | <u>20</u>    |
| 5                          | Water Quality Factors            | <u>10</u>    |
| 6                          | Proximity to Near Coastal Waters | <u>00</u>    |
| <b>TOTAL (Factors 1-6)</b> |                                  | <u>70</u>    |

S1. Is the total score equal to or greater than 80?  Yes (Facility is a major)  No

S2. If the answer to the above question is no, would you like this facility to be discretionary major?

No

Yes (add 500 points to the above score and provide reason below:

Reason: \_\_\_\_\_

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**NEW SCORE:** 70

**OLD SCORE:** 70

Kevin Harlow  
**Permit Reviewer's Name**

(540) 562 - 6788  
**Phone Number**

September 2, 2008  
**Date**